LEARNING REPORT
FOR
WAATAVARAN MITR
A CLEAN AIR FELLOWSHIP PROGRAM

(NOV 2021 - FEB 2022)

waatavaran

AN INITIATIVE BY WAATAVARAN CLIMATE ENVIRONMENT & SUSTAINABILITY FOUNDATION

waatavaran

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EdelGive Foundation — An Edelweiss Initiative

India Climate Collaborative

atmos real-time air quality — Respirer Living Sciences

WAATAVARAN MITR FELLOWS

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Rupesh Kalantri, *Aurangabad*

Sachin Dhotre, *Chandrapur*

Maheshwar Khetan, *Chandrapur*

Anil Sagat, *Latur*

Sangram Suryawanshi, *Latur*

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Baburao Khedekar, *Ulhasnagar*

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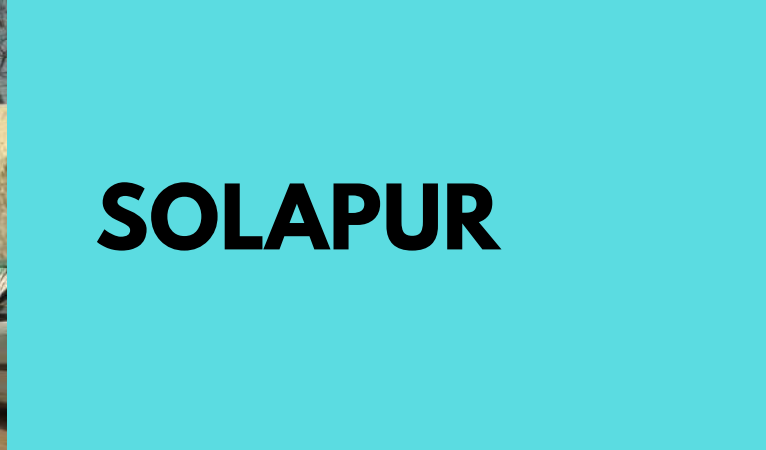
CHANDRAPUR

LATUR

SOLAPUR

AURANGABAD

ULHASNAGAR

AN INTRODUCTION TO AIR POLLUTION

Air pollution is one of the biggest risk factors to human health, affecting millions of people worldwide. It causes and exacerbates a number of diseases, including asthma, cancer, pulmonary and heart illnesses. In accordance with recent estimates by the World Health Organization (WHO), air pollution is now considered to be the world's largest environmental threat to health and well-being, accounting for nearly 7 million premature deaths around the world, every year.

Key air pollutants affecting human health include: *nitrogen oxides* (NOx), *sulphur oxides* (SOx), *ozone* (O3) and *particulate matter* (PM), with the latter—especially particulate matter below 2.5 microns (PM 2.5)—being of the greatest concern, as these particles penetrate deep into the lungs, affecting both the respiratory and vascular systems. The extent and the duration of the exposure, both, influence health outcomes. In India, nearly every individual is affected by air pollution, with over 90% of citizens being exposed to annual levels of outdoor fine particulate matter significantly over and above WHO-recommended air quality guidelines. This is of growing concern as research unravels more links between a number of serious diseases among various age groups and air pollution (such as diabetes, cognitive and developmental issues, pre-term and low-weight births, etc.). According to the Health Effects Institute (HEI), PM pollution was the third most significant cause of death in 2017, and was considered to have caused over 1.1 million premature deaths in India, of which nearly 56% were due to exposure to outdoor PM2.5 concentration, and 44% were attributed to household air pollution.

Industrialisation, urbanisation, increased energy consumption, rapid motorisation, as well as population growth, are some of the major driving forces behind an increase in air pollution in most cities across India. While air pollution levels in developed countries have shown a decreasing trend in recent decades, in developing countries and in countries in transition, air pollution levels are still at relatively high levels, all year round.

As per WHO's (2016) estimates, 14 out of the 20 most polluted cities in the world are situated in India. By concentrations of PM2.5 emissions, India was ranked the 5th most polluted country in the world, by WHO (2019); moreover, 21 of the top 30 most polluted cities by this measure, were Indian cities, which, on average, exceed the WHO-recommended air quality threshold by an alarming 500%.

Photo 1: Vehicular traffic in Delhi
Photo Courtesy: Wikimedia Commons
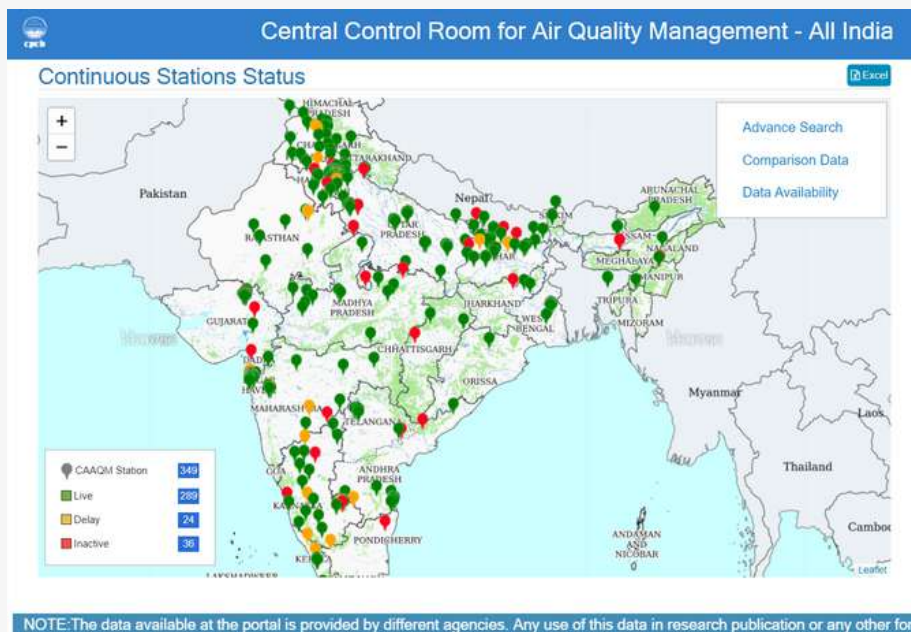
Photo 2: Status of continuous ambient air quality monitoring stations in India
Source: Central Pollution Control Board

In January 2019, the Ministry of Environment, Forest and Climate Change (MoEFCC) launched the National Clean Air Programme (NCAP), with the objective of introducing clean air action plans that could aid in reducing PM2.5 pollution by 20–30% by 2024 as compared to 2017.

Currently, as part of the NCAP initiative, Pollution Control Boards (PCBs) and Municipal Corporations (MCs) are working to improve air quality in 132 cities across India; of these, 124 have been identified and declared as *non-attainment cities,* where air quality monitoring systems have been set up by various PCBs and Pollution Control Committees. There are 349 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) across India; as of today, 289 are active, 36 are inactive and 24 are experiencing delays. In addition to this, each city has a network of manual monitoring stations that record data approximately twice a week.

A total of 25 cities under 5 cantonment boards are being funded under the National Clean Air Program and the XV-Finance Commission grants. However, despite the stringent guidelines, widespread monitoring networks, and city-specific clean air action plans, air pollution continues to plague Indian cities.

This is mainly due to the following challenges:
- **Setting up of hybrid air quality monitoring networks**
  - While a large number of CAAQMS have been set up, the network isn't sufficient and lacks even distribution of stations, with most of them being concentrated in mega-cities.
  - As a developing country, we may not be able to afford CAAQMS, due to the high costs of their installation and maintenance.
  - Additionally, while networks of manual monitors have been set up across cities, information from these monitors is not made available in real-time. In fact, data from these manual monitoring stations is only recorded twice a week.

Photo 3: Smog tower located in Connaught Place, Delhi
Photo Courtesy: Twitter/@AamAadmiParty

- Low-cost air quality sensors that monitor air quality in real-time show a lot of potential, but their incorporation within the hybrid air quality network in India is yet to be seen.

- **Curbing emissions at the source**
  - We are living in a technologically advanced era where smog towers and air quality filtration systems may seem like effective solutions to the air pollution crisis, but in reality, they are only short-term fixes, or band-aids that solely address the symptoms of the issue, not the cause. In order to see any significant reduction in air pollution, emissions must be controlled at their source.
  - To curb emissions at the source, we need to rethink and recreate systems and infrastructure that have aggravated the crisis.

- **Implementation of Clean Air Action Plans**
  - Effective implementation of clean air action plans requires seamless

- coordination between all monitoring and implementing agencies, as well as reg regular meetings to follow up on the status.
- A good plan means half the work is done; however, these plans must be reviewed annually and key changes must be incorporated to further strengthen the plan. Moreover, these revised plans need to be made available publicly.
- Monitoring and implementing agencies must seek the active participation and involvement of citizens to ensure effective and timely implementation of action plans.

With the intention of addressing some of these challenges, we launched the ***Waatavaran Mitr*** *Clean Air Fellowship Programme* in late 2021, with support from the India Climate Collaborative, and Respirer Living Sciences. Details of the initiative have been elaborated upon in the following pages.

waatavaran mitr
A CLEAN AIR FELLOWSHIP PROGRAM

A NEW BEGINNING

The **Waatavaran Mitr Clean Air Fellowship Programme** was born out of a need to build a community of changemakers in Maharashtra—the Indian state with the most number of non-attainment cities—across 5 non-attainment cities, including **Ulhasnagar**, **Chandrapur**, **Aurangabad**, **Latur**, and **Solapur**. By setting up low-cost sensor networks, mapping local quality landscapes, identifying and supporting local stakeholders (2 per city), creating public discourse on air pollution, as well as tracking the implementation of local clean air action plans, we aimed to strengthen the clean air movement among communities in Maharashtra.

Two fellows from each city engaged with their local communities and organisations, as well as anchored awareness sessions on clean air and air quality. These fellows had been trained to (i) enhance their understanding on the technical aspects of air quality, (ii) develop a understanding of local, state and national policies on clean air, as well as (iii) comprehend and address socio-economic implications of the air pollution crisis. Further, we facilitated dialogues between citizens and decision-makers, to ensure the participation of a range of stakeholders in each city, in addressing air pollution.

ACTIVITIES	START DATE	END DATE
Weekly online fellow training sessions	November 1, 2021	February 28, 2022
Deploying low-cost air quality sensors across 5 cities	November 2, 2021	December 4, 2021
Stakeholder mapping and landscapes assessments	December 5, 2021	January 30, 2022
Video documentation and community engagement	February 1, 2022	February 28, 2022

SELECTION PROCESS

The Waatavaran Mitr Fellowship Programme was launched digitally (on Twitter, Facebook, Instagram, and WhatsApp) on October 20, 2021; a call for applications was put out thereafter, which received traction from many cities including Mumbai, Navi Mumbai, Panvel, Pune, Nagpur, Nashik, Amravati, Ahmednagar, Hyderabad, and Indore.

We received over 100 applications across the 5 cities, out of which 25 candidates (5 per each city) were shortlisted for interviews basis their educational qualifications, work experience, as well as their understanding of air pollution and its impacts; a minimum of 2 women from each city were also presented with an opportunity to interview for this fellowship. Finally, 10 candidates (2 per city) were selected from the shortlisted pool to represent the 5 non-attainment cities, as *Waatavaran Mitrs* or *Clean Air Fellows*; as a result, the final cohort consisted of 4 environmentalists, 3 journalists, 2 social activists, and 1 architect.


Photo 4: Fellows selected for the Waatavaran Mitr programme
Photo courtesy: Waatavaran Foundation

TRANSFORMATION THROUGH EMPOWERMENT

(A) TRAININGS

For the fellows, training sessions played a vital role in helping develop their understanding of air quality, as well as of the Waatavaran Mitr Fellowship Programme. A total of 13 sessions were conducted, to share knowledge and build the capacities of the Waatavaran Mitrs. An introductory session was followed by an orientation session providing an overview of the initiative and of air pollution as a crisis; post that, sessions gradually transitioned to addressing the technical aspects of air quality analysis and management. These were followed by sessions on policy advocacy and community engagement. Not only did the fellows learn how to deploy low-cost air quality sensors, and access and analyse air quality data, but also how to bring awareness to communities and engage with policymakers.
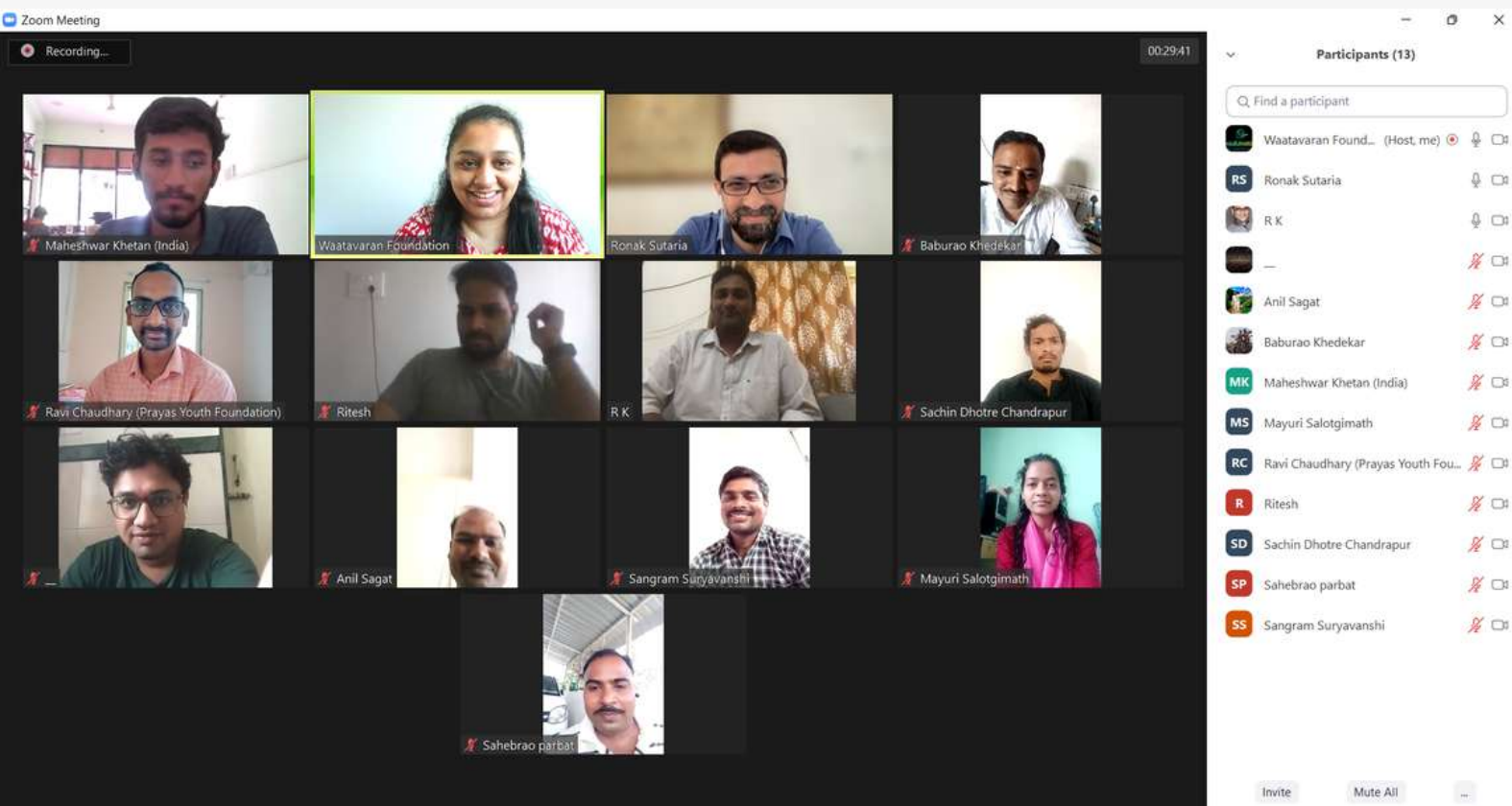

Photo 5: Fellows attending a training session on low-cost air quality sensors
Photo courtesy: Waatavaran Foundation

Photo 6: Testing the low-cost, real-time, particulate matter sensor before distribution to different cities
Photo Courtesy: Respirer Living Sciences

(B) DEPLOYMENT OF LOW-COST AIR QUALITY SENSORS

A real-time air quality sensor network of 25 monitors was deployed across 5 non-attainment cities in Maharashtra—Ulhasnagar, Chandrapur, Aurangabad, Latur, and Solapur. Data from these monitors was integrated onto the Waatavaran website (http://waatavaran.in/aqm-dashboard/) and made available to the public. Thus, the combined efforts of the fellows and the local community were showcased publicly to foster collective learning, in addition to providing a platform for sharing air quality information.
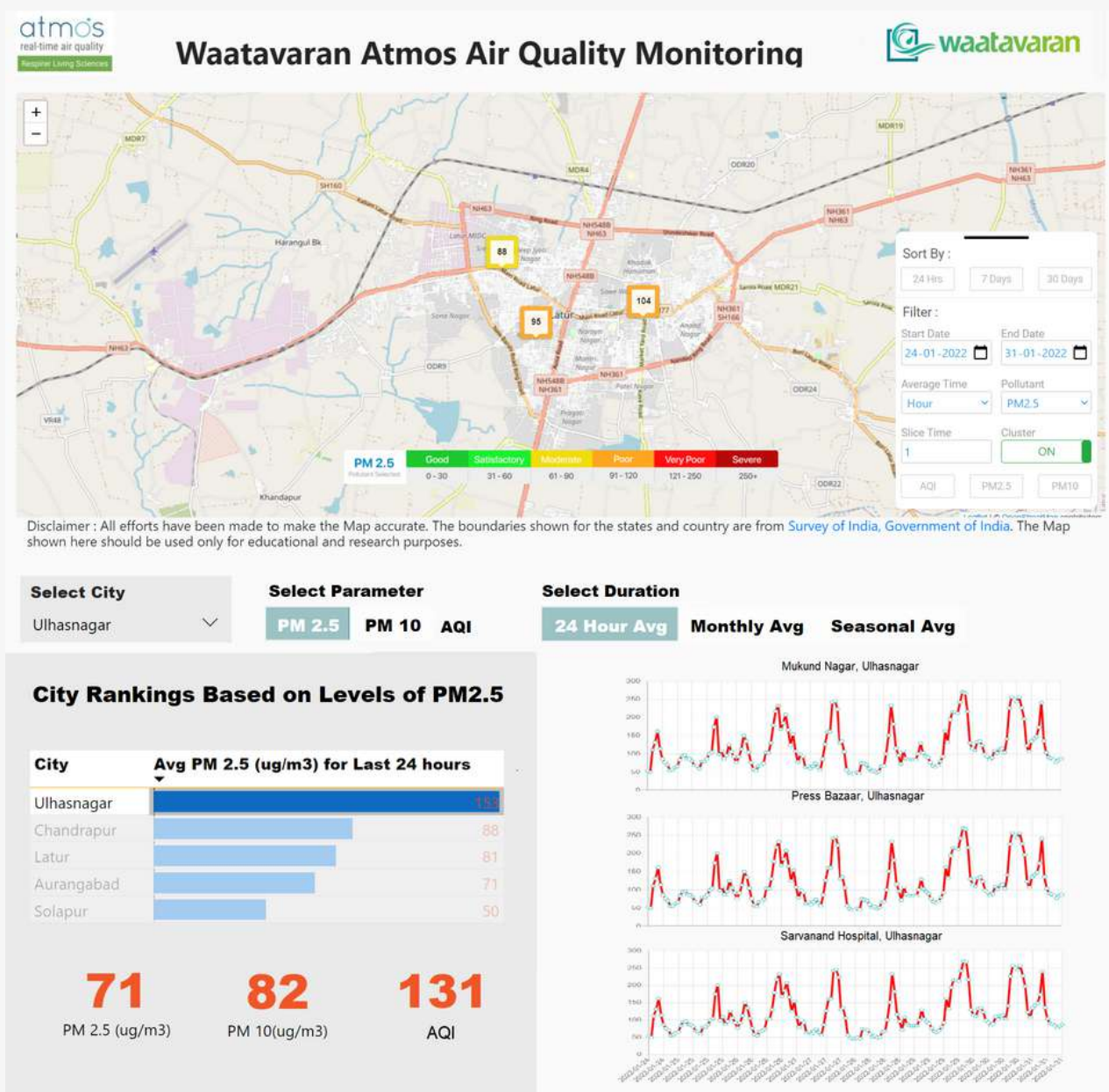
Photo 7: Air quality monitoring dashboard displaying real-time air quality data on the Waatavaran website
Photo courtesy: Waatavaran Foundation

(C) STAKEHOLDER ENGAGEMENT

Stakeholders—including local governments, industries, research agencies, civil society organisations, and not-for-profit groups—in each city come from diverse backgrounds. These stakeholders' voices reflect greatly the manner in which each city functions, what issues and solutions they prioritise, and the requirements of each city, all of which play a crucial role in shaping the city.

By way of the visits scheduled through the Waatavaran Mitr Fellowship Programme, fellows in each city were able to build strong local stakeholder networks, all of which are active.

Photo 8: Waatavaran Mitrs Sachin and Maheshwar organised a visit and awareness session for school students (with Eco-Pro)
**Photo Courtesy:** Maheshwar Khetan, Waatavaran Mitr

Photo 9: Waatavaran Mitrs Mayuri and Sahebrao visit members of civil society in Solapur
Photo Courtesy: Sahebrao Parbat, Waatavaran Mitr

Photo 10: Waatavaran Mitrs Anil and Sangram visit the District Collector of Latur
Photo Courtesy: Anil Sagat, Waatavaran Mitr

(D) VIDEO DOCUMENTATION

The air pollution crisis is the result of a combination of anthropogenic activities; however certain activities contribute significantly towards the deteriorating air quality of a city more than others. Through video documentation, Waatavaran Mitrs, with the help of local stakeholders, highlighted the causes and impacts of air pollution in the context of each city; these videos were published on Waatavaran's social media platforms for public access.
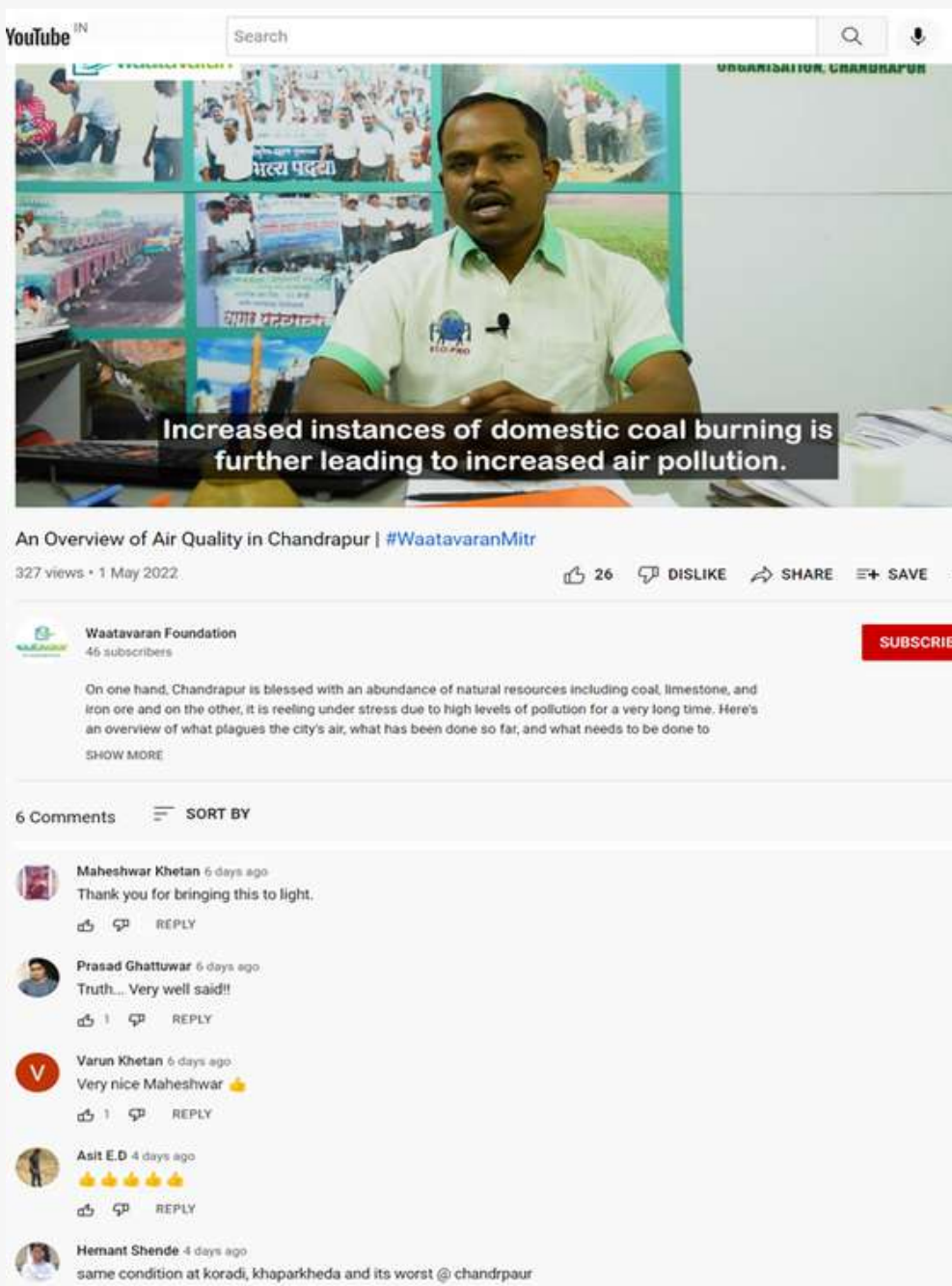
Photo 11: City-wise content featured on Waatavaran's YouTube channel
Photo courtesy: Waatavaran Foundation

AURANGABAD

Aurangabad is situated on the banks of the River Kham, a tributary of the Godavari River. Spread over approximately 139 square kilometres, the city has a population of over 11 lakh people; it also houses the district's administrative headquarters. Aurangabad is surrounded by industries on all sides, including the Maharashtra Industrial Development Corporation (MIDCs) of Chikalthana, Shendra and Waluj.

MEET OUR WAATAVARAN MITRS

RAVI CHOUDHARY

Founder and President of Prayas Youth Foundation (a non-profit-organisation), and an expert member of the Tree Authority Committee of Aurangabad Municipal Corporation.

RUPESH KALANTRI

An independent journalist with over 20 years of experience in addressing community and environmental issues.

When they joined the programme, Ravi and Rupesh were uncertain about how the fellowship would benefit them, but as the they progressed through it—with each interaction and training session—they gained a deeper understanding of the crisis and its impacts, and ways to combat the same. Today, Rupesh and Ravi are taking the cause of clean air forward by addressing emissions from the waste sector, by furthering appropriate waste segregation and disposal practices in partnership with communities and local officials.

Overview
City Area: **139 square km**
City Population (2011): **11,75,116**

Climate data for Aurangabad (1981–2010)
Avg. High Temp: **32.5 °C**
Avg. Low Temp: **18.8 °C**
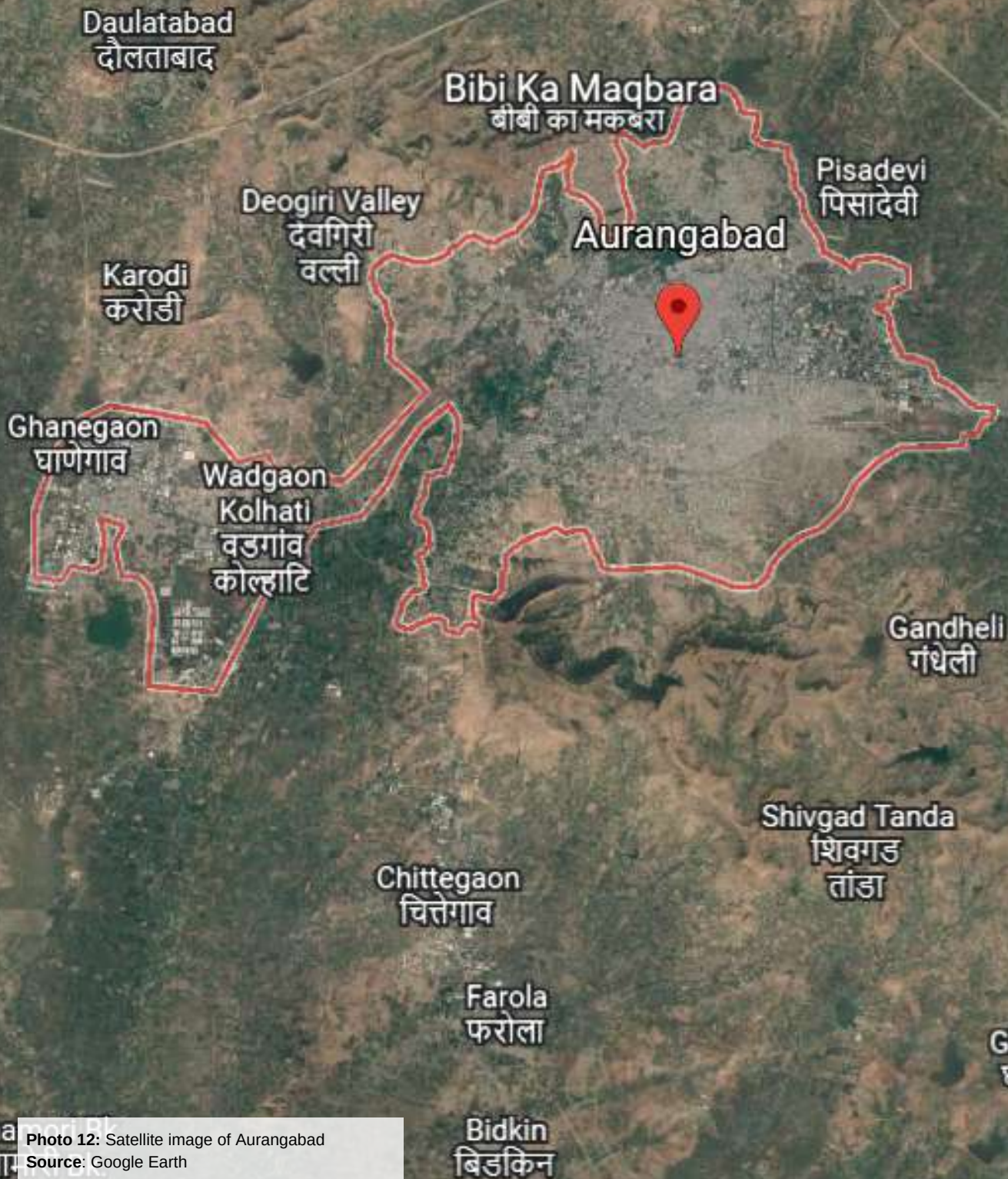Precipitation: **798.7 mm**
Humidity: **45%**

Photo 12: Satellite image of Aurangabad
Source: Google Earth

> *Initially, air pollution was like a small paragraph, but after a few sessions, it had taken on the shape of a chapter in my mind. Eventually I realised it is not even a book, it's like a huge library and that one has to go through each book very meticulously. My understanding of air pollution improved with every training session, and I began considering my role in addressing it.*
>
> **RAVI CHOUDHARY**

> *This fellowship developed my scientific understanding on air quality, how to source air quality information and how to further analyse the data. Air pollution is a complex subject. Now that I have a better understanding, I understand why reporting about it always felt challenging. I can now confidently report in a way that will enable me to cover different aspects and ensure that I can communicate it effectively to citizens.*
>
> **RUPESH KALANTRI**

HIGHLIGHTS OF STAKEHOLDER ENGAGEMENT IN AURANGABAD

The citizens of Aurangabad were eager to have an low-cost air quality sensor network be set up in their city, as they would now be able to measure quality of the air locally, and act accordingly based on evidence, which was not possible (and accessible) to them prior to this engagement. This kind of awareness led to engagement with citizens in multiple ways, including many of them circulating videos and photos of air pollution sources in their areas, and even planning to meet with local authorities as a group.

"*This helped us start an evidence-based dialogue with concerned government officials through which we could ask them to look into air pollution. We took a sector-wise approach and felt that the solid waste burning issue needed to be addressed with priority*", said Kalantri.

The fellowship ended in February 2022 but Ravi and Rupesh continued their journey for clean air in Aurangabad. Both the fellows prepared a local intervention plan and started a community-led group named 'Havi Shuddha Hawa (We Need Clean Air)'. Kalantri has also proposed an idea of playing jingles in the garbage collection vehicles which urges citizens not to burn waste and to reduce household emissions. "*I met officials from the Solid Waste Management department of Aurangabad Municipal Corporation a couple of times and requested them to give instructions to all garbage vehicles to play the jingles to encourage sustainable waste management practices. I also requested officials to visit the places where open waste burning is done regularly and take corrective action*", said Kalantri.

The administration welcomed the suggestions of the community and is keen to work together with the citizens to curb air pollution.

Photo 13: Waatavaran Mitr Rupesh Kalantri and Ravi Choudhary install SIM cards into the low-cost air quality sensors
Photo courtesy: Ravi Choudhary, Waatavaran Mitr

Photo 14: Family poses with a low-cost air quality sensor deployed at Aurangabad
Photo courtesy: Ravi Choudhary, Waatavaran Mitr

ULHASNAGAR

Ulhasnagar is a town situated at a distance of 58 kms away from Mumbai. It lies in the catchment area of the Ulhas River which opens out into the Arabian Sea through the Vasai and Thane Creeks. Waldhuni and Khemani (once tributaries) that run into Ulhas River and drain Ulhasnagar, today are referred to as 'nalahs'. Rightly so, because these water bodies have almost become devoid of life forms due to the high levels of pollution.

The city is divided into two parts by these water bodies and is connected by a bridge over the railway tracks and the Ulhas River. Since it was a military transit camp before world 2, the terminology still exists while referring to the various part of town. The north part of the town comprises camps 1, 2, and 3, south part has camps 4 and 5.

MEET OUR WAATAVARAN MITRS

VINOD SEWLANI

An Architect and Urban Planner with 15+ years of experience. His keen interest in environment protection and improving air quality led him to be part of the Waatavaran Mitr program.

BABURAO KHEDEKAR

An independent journalist with 15+ years of experience. He has worked in leading Marathi newspapers of Maharashtra like Sakal & Daily Pudhari

Overview
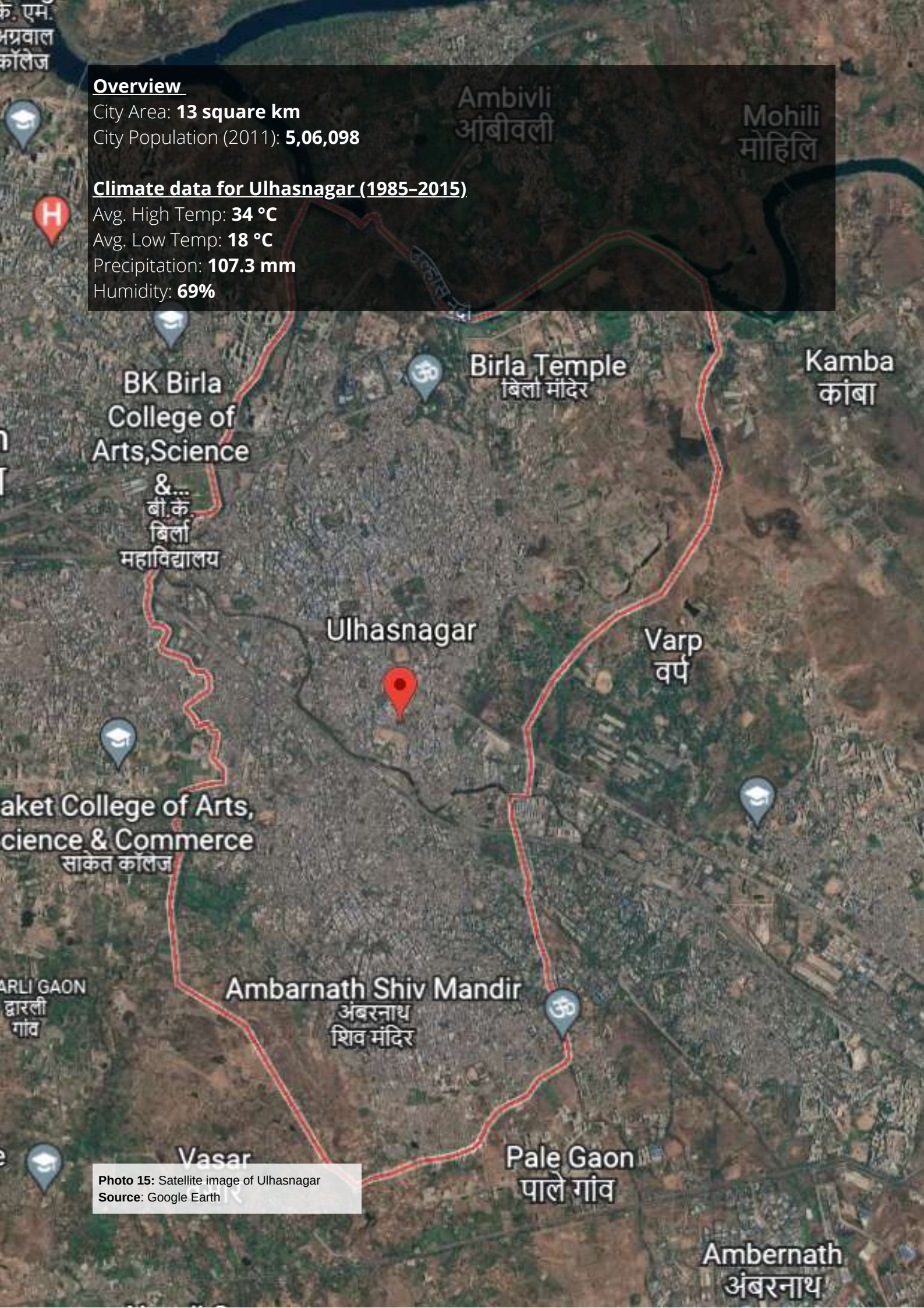City Area: **13 square km**
City Population (2011): **5,06,098**

Climate data for Ulhasnagar (1985–2015)
Avg. High Temp: **34 °C**
Avg. Low Temp: **18 °C**
Precipitation: **107.3 mm**
Humidity: **69%**

Photo 15: Satellite image of Ulhasnagar
Source: Google Earth

Despite being enlisted as a non-attainment city, Ulhasnagar Municipal Corporation's Environment Department did not have a designated officer to address the issues. There is sufficient awareness of the various environmental problems among the citizens. However, it wasn't translating into action. This meant that both Khedekar and Sewlani had to work harder to ensure they were heard. During their 4-month long experience as a part of the WMFP, they both experienced challenges reaching out to the different stakeholders. The program helped in initiating engagement with various stakeholders on clean air and enhancing the skills of Waatavaran Mitrs.

"The WM program helped me develop research skills that are helpful in my professional career as a journalist," informed Khedekar. He said that the WM program will definitely enrich his reporting skills on air pollution.

HIGHLIGHTS OF STAKEHOLDER ENGAGEMENT IN ULHASNAGAR

The WM program helped to initiate the much-needed discussion on clean air in the polluted city of Ulhasnagar. Boat Club Garden near Hira Ghat is among the largest (6.53 acres) gardens in Ulhasnagar and is plagued with parking of heavy vehicles like trucks, and bulldozers of contractors who are tasked with cleaning the city. Gol Maidan (2.5 acres) which has an air quality monitoring station installed is yet another public space that is being encroached for parking. Efforts from Khedekar and Sewlani pushed local authorities to address some of the issues linked to air pollution. Very recently, the UMC finally hired a dedicated consultant in its Environmental Department to address the air quality issues.

"We are hoping that this new officer will bring about some change here. There are some things that can be taken up with priority. For example, both Boat Club and Hira Ghat gardens are the biggest open spaces in Ulhasnagar city.   Proper maintenance could help in retaining this very important green cover in the city. Further, waste burning is another problem that has arisen in absence of proper management and disposal measures," said Sewlani. Expressing disappointment with the slow action by the corporation, both fellows said that not much development is happening on the clean air front. To further build the narrative and engagement in the city on air pollution, fellows also suggested the installation of a 'Lung Billboard', just like the one that was installed in Chandrapur city.

CHANDRAPUR

Chandrapur, the 'City of Black Gold' is located in the Vidarbha region of Maharashtra. It is rightly called so because of the abundant availability of coal in the region. A surplus of coal has led to the opening of an increasing number of coal mines and the Chandrapur Super Thermal Power Plant (CSTPS) in the city. Further, the abundant availability of minerals like iron ore and limestone in the neighbouring regions of Sindewahi, Rajura and Korpana has led to the emergence of cement plants and steel factories.

The abundance of the minerals and industries based on them has played a critical role in the development of Chandrapur. However, this has also led to the emergence of environmental problems. In addition to this, vehicular emissions and domestic coal burning also contribute significantly to the multitude of air pollution problems in Chandrapur. The deteriorating air quality is threatening the health of citizens, crop yields of farmers and the rich wildlife that is so closely situated to Chandrapur city.

MEET OUR WAATAVARAN MITRS

SACHIN DHOTRE

An environmentalist with a creative streak. He works at Eco-Pro organisation in Chandrapur under the leadership of Bandu Dhotre, a renowned environmentalist and social activist.

MAHESHWAR KHETAN

An Architect by profession, Khetan works at Vedic Vastu Solutions and is an environmentalist and a digital media activist at heart.

Overview
City Area: **76 square km**
City Population (2011): **3,20,379**

Climate data for Chandrapur (1981–2010)
Avg. High Temp: **34.4 °C**
Avg. Low Temp: **21.4 °C**
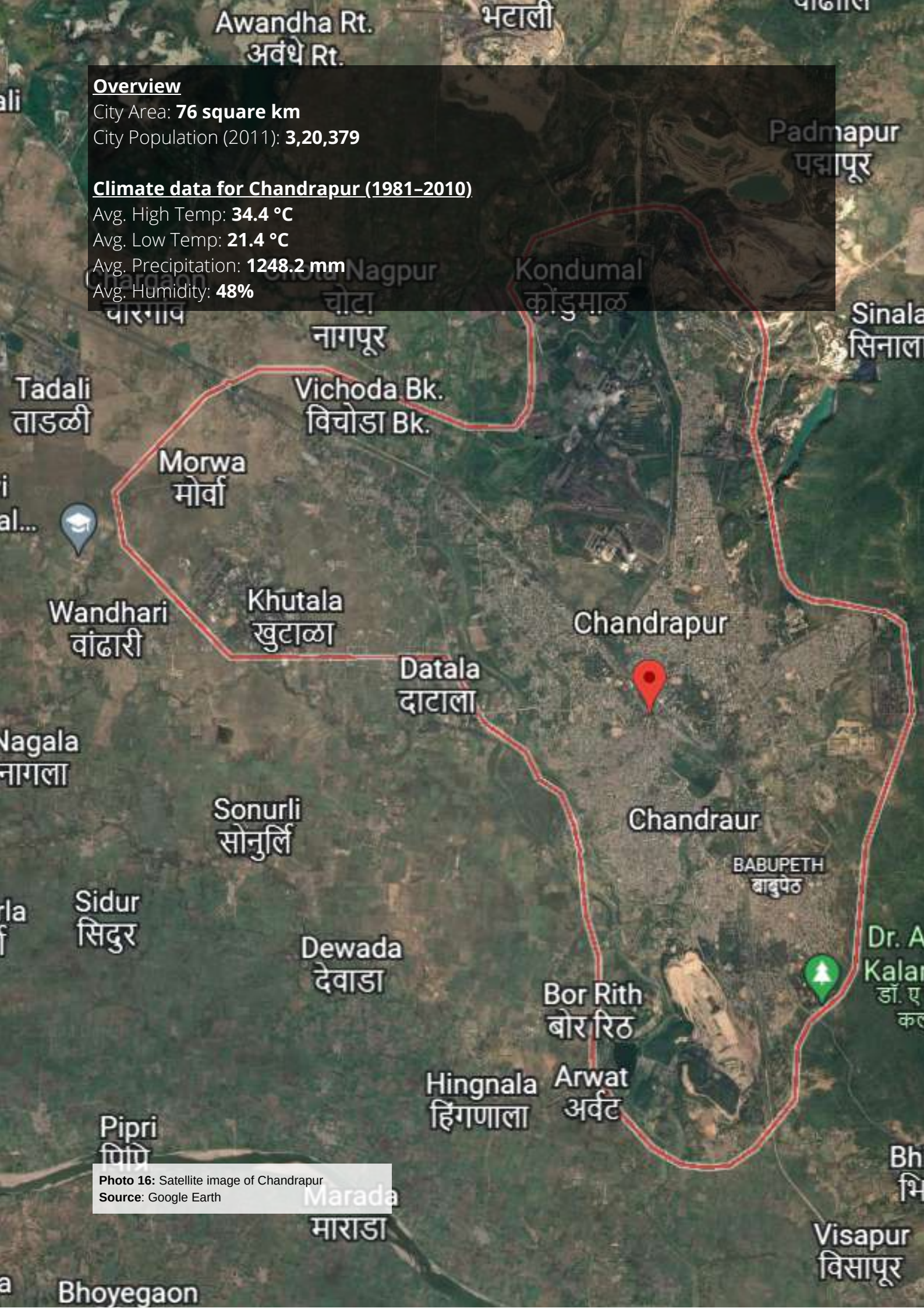Avg. Precipitation: **1248.2 mm**
Avg. Humidity: **48%**

Photo 16: Satellite image of Chandrapur
Source: Google Earth

HIGHLIGHTS OF STAKEHOLDER ENGAGEMENT IN CHANDRAPUR

The WM program played a significant role in mobilising communities by highlighting the impact of air pollution on human health and the environment. More importantly, it provided a platform where citizens could come together, voice their opinions, deliberate upon the problems, and even take action to ensure corrective measures are enforced.

An excellent example of this is the rigorous follow-up that was done by the citizens (as a part of the WMFP) to ensure that local authorities hired sweeping machines. *"Considering the presence of coal mines around Chandrapur city, dust pollution is a big problem. We had requested the concerned officials in the Chandrapur City Municipal Corporation to use dust sweeping machines on roads to minimize air pollution. The corporation has now procured two dust sweeping machines. A small step, but an important one nonetheless,"* said Khetan.

Furthermore, Eco-Pro along with other organisations including Chandrapur Bachao Samiti and Green Planet Society have been leading the air pollution battle for a very long time. *"The timeliness of the WMFP helped in boosting our efforts of shutting down Chimneys 1 and 2 of the CSTPS. Chandrapur has a rather long and arduous history of air pollution. While our interventions began long before WMFP, our engagements with Waatavaran which included the setting up of the Lung Billboard helped us to further mobilise communities. The Lung Billboard which was set up with the support and permission of the Chandrapur City Municipal Corporation and in collaboration with the Environment Department of Maharashtra's Majhi Vasundhara initiative received a lot of traction. We organised school visits as well as a 'Chaupal Charcha' for engaging with Civil Society Organisations. Mobilising communities and facilitating stakeholder meetings as a part of the WMFP played a significant role in accelerating the process of shutting down of chimneys 1 and 2,"* said Dhotre.

The aforementioned examples are indicative that taking a people-centric approach can help to build the necessary discourse.

LATUR

Latur is one of the largest cities in the Marathwada region of Maharashtra with a population of 396,955 (as of the 2011 census). It is the administrative headquarters of Latur district and Latur Taluka. This drought-prone area receives its drinking water from the nearby Manjira River, which suffered from environmental degradation and silting. Despite the acute water shortages in urban and rural areas, Latur's economy is agriculture intensive. In addition, this city surrounded by many historical monuments, including Udgir Fort and Kharosa Caves is also a tourist hub. Mining is yet another major occupation in Latur with 11 mining licenses for stone quarries being issued by respective authorities in Latur district.

MEET OUR WAATAVARAN MITRS

SANGRAM SURYAWANSHI

An independent social activist with 10+ years in the development sector. He has previously worked as a community organiser at the Taluka Agriculture Office, Karad district and as a taluka coordinator at Paani Foundation.

ANIL SAGAT

An independent social activist, he has previously worked at Paani Foundation as a taluka coordinator and data manager for Marathwada Zone.

Overview
City Area: **32.56 square km**
City Population (2011): **3,96,955**

Climate data for Latur
Avg. High Temp: **41 °C**
Avg. Low Temp: **13 °C**
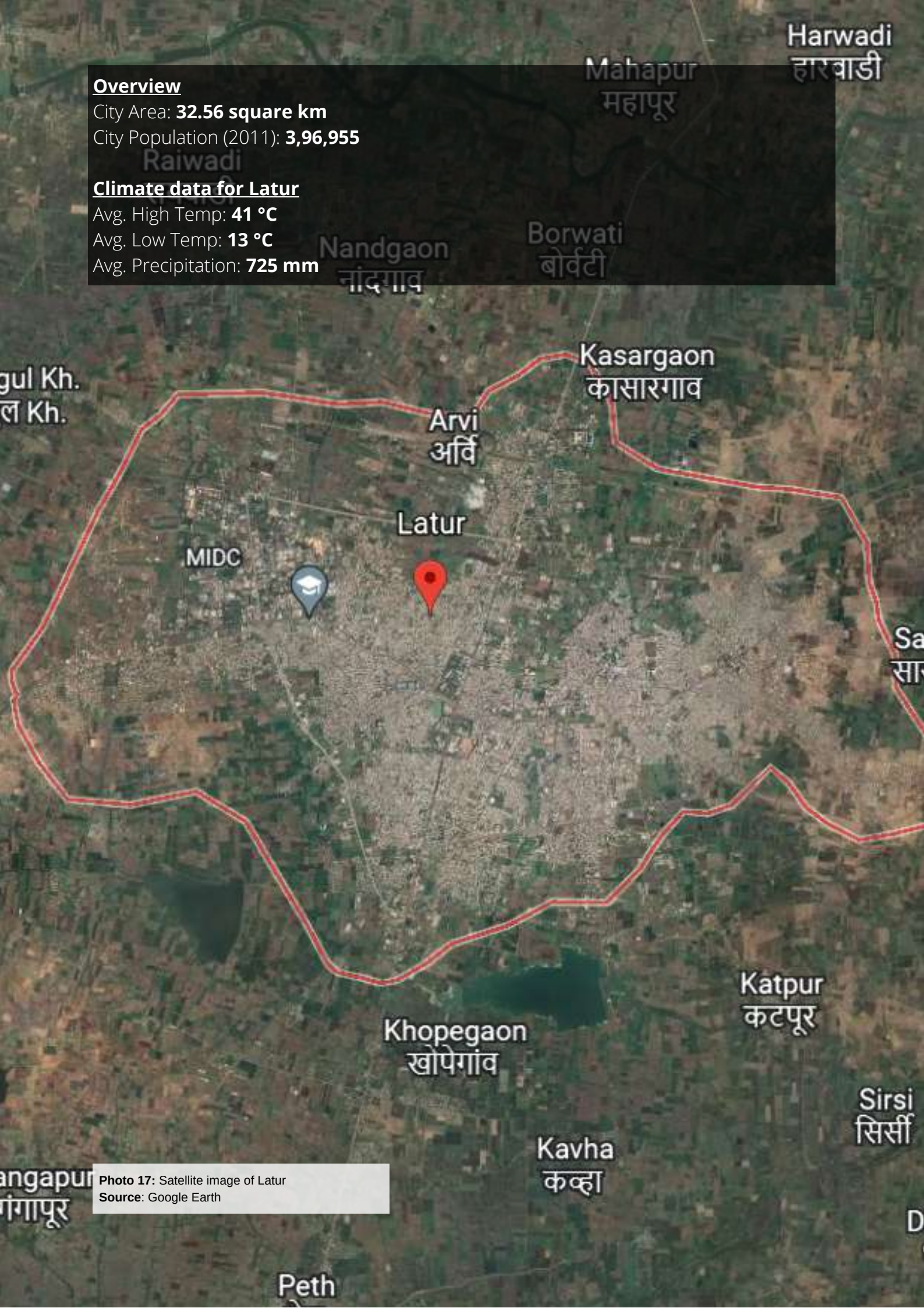Avg. Precipitation: **725 mm**

Photo 17: Satellite image of Latur
Source: Google Earth

Being active in the social sector helped Sagat and Suryavanshi to reach out to diverse audiences to disseminate knowledge on air pollution as well as to form a group of those who would like to actively participate in improving the air quality in Latur. *"As a part of WMFP, we had to test low-cost air quality sensors. Even though we had the simple task of connecting the devices to an active 4G network. It almost made me feel like I was an engineer. I thoroughly enjoyed it. Having such experiences is crucial. You begin to value the importance of all elements and stakeholders involved. Before WM I hardly had any knowledge on air pollution,"* said Sagat, highlighting that the WM program was the first of its kind initiative in Latur on air pollution.

Until the WMFP, there was a vacuum on clean air issues in the city. This created an opportunity for both fellows to set a discourse among citizens and stakeholders.

HIGHLIGHTS OF STAKEHOLDER ENGAGEMENT IN LATUR

The government authorities and public representatives in Latur city were very proactive and extended their full support. One of the most important interventions was installation of real-time air quality display monitors at traffic intersections at multiple locations across the city. Prithiviraj B. P., District Collector, Latur and Vikrant Gojamgunde, Mayor, Latur City played a crucial role in installation of these monitors.

"After a few visits, the Collector and Mayor came forward with the idea of displaying the real-time air quality information at traffic signals. For the first time citizens were able to see real-time air quality information in the city," said Sagat.

Latur's first low-cost air quality monitor was officially inaugurated by MLA Dhiraj Deshmukh post which he addressed all members of the civil society that had gathered to address the issues of air pollution in Latur city. In other engagements they organised meetings with Ganesh Mandals, Chalak Malak Sanghatana (Transport association), government officials including the Mayor, District Collectorate Office and Municipal Commissioner. They also conducted a session with students of Rajarshi Shahu Mahavidyalaya, Latur. Even after WMFP got over, citizen groups continued to explore mitigation methods for reducing air pollution in Latur city. The fellows are still in touch with all stakeholders.

Photo 18: The first low-cost air quality sensor of Latur, inaugurated by MLA Dhiraj Deshmukh
Photo courtesy: Waatavaran Foundation

Photo 18: A low-cost air quality sensor being deployed at Latur Police Station
Photo courtesy: Anil Sagat, Waatavaran Mitr

SOLAPUR

Solapur city with a population of 951,558 (as of census 2011) is situated in southern Maharashtra, sharing a border with Karnataka. The city has lovely temples, historical monuments and a variety of wildlife. This city steeped in history and culture is also infamous for its soaring temperatures during the summer.

What it is famously known for, is its textile products including towels, bed linens & cotton blankets. It has been a leading centre for cotton mills and power looms in Maharashtra. Solapur had the world's second-largest and Asia's largest spinning mill.

MEET OUR WAATAVARAN MITRS

MAYURI SALOTGIMATH

A conservationist with a postgraduate degree in Environmental Sciences. She completed her internship at the Centre for Environment Education before she joined the WMFP

SAHEBRAO PARBAT

A journalist with 10+years of experience and works at Dainik Balkadu, a regional newspaper based in Solapur. He covers environmental and other issues that impact the society.

Overview
City Area: **98.67 square km**
City Population (2011): **9,51,558**

Climate data for Solapur (1981–2010)
Avg. High Temp: **34.1 °C**
Avg. Low Temp: **20.8 °C**
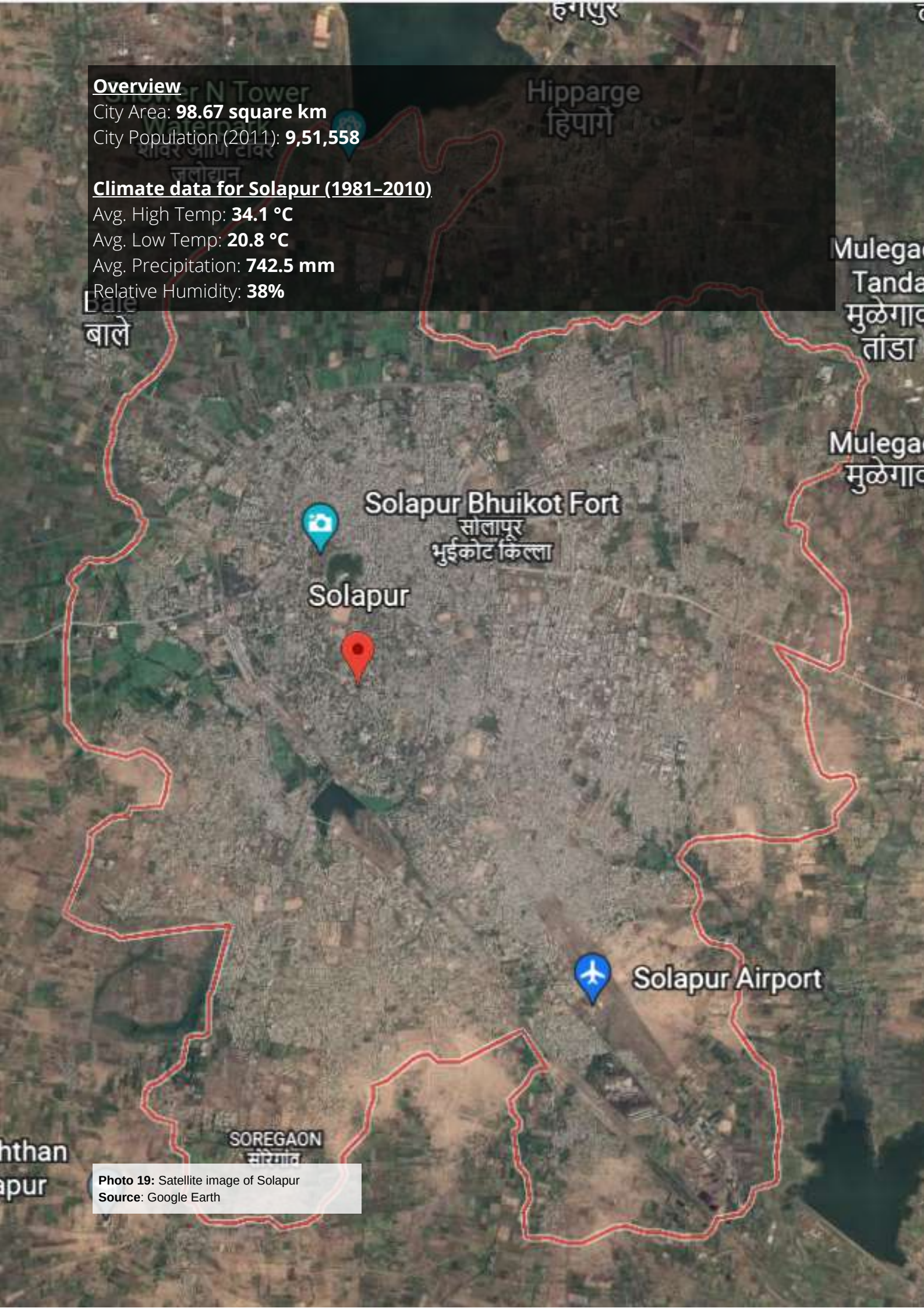Avg. Precipitation: **742.5 mm**
Relative Humidity: **38%**

Photo 19: Satellite image of Solapur
Source: Google Earth

When the program was launched in Solapur city, it became apparent that while there were a number of Non-Governmental Organisations (NGOs), social workers, civil groups working on environmental issues but there wasn't much awareness or engagement specifically on air quality related issues.

Sharing her experience as a Waatavaran Mitr, Mayuri said that being an environmental science graduate she had a theoretical understanding of air pollution. This program however, played an instrumental role in developing a practical understanding on the subject and provided her with an opportunity to network with citizens and citizen led groups on. *"The program gave a platform to initiate some very important dialogues with relevant stakeholders and raise awareness among citizens,"* said Mayuri. Fellows also acknowledged that their technical understanding of air quality monitors was also enhanced during the fellowship.

HIGHLIGHTS OF STAKEHOLDER ENGAGEMENT IN SOLAPUR

One of the key outcomes of the WMFP in Solapur was awareness led behaviour change among citizens. Parbat shared that the widespread consultation with various stakeholders and community engagement pushed people to take action at their level to prevent air pollution.

"*After our engagement, there was a substantial shift in citizen's behaviour and many stopped burning solid waste and dry leaves. There was little knowledge on the source and reasons for air pollution among people. But several rounds of engagement with citizens helped build awareness on the impact of pollution on human health*," said Parbat and also highlighted that they started receiving calls from the citizens on air pollution.

The other achievement of the program was the efficient and proactive approach of the concerned government officials in case they come across air pollution issues. Fellows said that even though the WM program has ended they are still visiting to check the working condition of low-cost sensors. Residents in whose homes these monitors are deployed often connect with fellows when sensors start indicating poor air quality and discuss how this problem can be addressed effectively.

A 3-YEAR OLD AND AN AIR QUALITY MONITOR

This is a shining example of how powerful data can be and how information-based decision making can help to mitigate air pollution. One fellow in each city was assigned the task of deploying air quality monitoring sensors. Mayuri was testing the low-cost sensors prior to deployment, when her curious 3-year old nephew asked her what she was doing.

"At first, I was stumped. I wondered how to explain this to him. After pondering for a few minutes, I told him, this monitor tells us how clean our house is. If the light on the monitor is green, that means our house is clean, if it is yellow, orange or red, it means our house is dusty. After a few days, in the middle of the afternoon he started sweeping the floor. Everyone at home was surprised and asked him why he was sweeping the floor? He pointed towards the monitor and said the light is red, my house is dusty, so I must clean it. I was in complete awe of my nephew," said Mayuri.

Photo 20: Waatavaran Mitr Mayuri shares how she explained to her 3-year old nephew about the low-cost air quality monitor
Photo courtesy: Waatavaran Foundation

IMPACT OF WAATAVARAN MITR

The Waatavaran Mitr was a first of its kind Fellowship Program implemented in 5 non-attainment cities of Maharashtra to empower 10 fellows. The following impact was achieved through this pilot program:

<u>Access to Air Quality Data</u>
- ***3,70,807 citizens*** in 5 non-attainment cities had access to real-time data through a network of 20 low-cost air quality sensors deployed.
- ***885 individuals*** (students, youths, adults) were made aware regarding the issue of air quality.
- ***77 government officials*** *(including local panchayats, authorities of the pollution control board, pollution control boards, municipal corporations)* were reached out to. They acknowledged the problem of air pollution as well as our efforts in raising awareness. They expressed their opinions through videos (later published on our social media platforms).
- ***Havi Shuddha Hawa (Need Clean Air),*** a WhatsApp group was created by Waatavaran Mitr Rupesh and Ravi to bring together members of the civil society who are willing to take actions for improving air quality in the city.
- ***11 different NGOs*** **and community groups** have been activated to address the issue of air pollution.
- ***315 school students*** have been reached out to by WMFP fellows in Latur, Solapur, and Chandrapur cities.

<u>IMPACT THROUGH SOCIAL MEDIA</u>
- The total reach of the different posts, links and videos related to WMFP on social media platforms of Waatavaran is **88824.**
- On Twitter, these posts, links, and videos received the most views i.e. **66580**, followed by **7846** impressions on Instagram, **6157** on Facebook, **4929** on Youtube, and **3312** on LinkedIn.
- The videos that give an overview of air quality of 5 cities received **8543** views on different social media platforms of Waatavaran.

<u>MEDIA COVERAGE</u>
- The WM program was covered by mainstream as well as regional newspapers like <u>Free Press Journal (English),</u> <u>E-Sakal</u>, Lokmat, Punya Nagari, Pudhari, Navshakti and <u>Ulhasline Bulletin</u>.
- One of our fellow Rupesh Kalantri from Aurangabad was invited by RJ Preshit from 94.3 My FM to discuss and raise awareness on air pollution.
- The media coverage helped disseminate the WM program and its objectives among lakhs of readers across Maharashtra.

Impact indicators	Latur	Aurangabad	Solapur	Chandrapur	Ulhasnagar	Total
No. of AQM installed	4	4	4	4	4	20
No. of citizens aware about the AQ through deployment of AQMs	42564	130614	105766	35610	56253	370807
No. of sessions with schools	3	0	1	2	0	6
No of sessions with community	1	2	1	1	0	5
No. of students (school/college) reached out	250	0	25	40	0	315
No. of adults from the communities	100	15	70	20	35	240
No. of college students reached out	300	0	0	30	0	330
No. of govt. officials engaged with	38	20	5	6	8	77
No. of Non govt. officials engaged with	12	4	4	6	3	29
No. of community groups created	1	1	0	1	0	3
No. of NGOs involved/activated	2	2	6	1	0	11
No. of news published through newspapers	0	0	4	8	5	9
Outreach through Print Media	0	0	40000	80000	50000	170000
Promotion of WMFP on 94.3 My FM (Radio) of Aurangabad - with WM Rupesh Kalantri	-	195921	-	-	-	195921

Social Media	Twitter	Facebook	Instagram	Linkedin	YouTube	Total
Impressions	66580	6157	7846	3312	4929	88824
Video - Total views	2713	174	2748	2253	655	8543

OUR LEARNINGS

- Diverse **stakeholders** exist in each territory, such as politicians, urban local governments, industries, research agencies, civil society organizations, and not-for-profit organizations. They all play a crucial role in shaping the city. A list of different stakeholders has been curated for each of the five cities. It includes what they do, how they can contribute to achieving clean air and what kind of support they may need. Providing fellows flexibility (under supervision) to engage with stakeholders and take the lead in their cities ensured that the needs of the civil society were being met. Fellows in each city were able to build strong networks, all of which are active.

- The idea of having **two fellows** in each city was to ensure that while one takes the lead in community engagement and policy advocacy, the other could take the lead on research, documentation and data analysis. It has proved extremely beneficial. Working in pairs gives them a chance to discuss and try out ideas. It also provides a comfortable way for fellows to work through new information, concepts, activities and engagements. Additionally, there may be times when a fellow may not be available or in drastic circumstances need to drop off from the programme. If that were to happen, having two fellows ensures that the work can continue with minimal interruptions.

- During the field visit, the fellows requested offline **training sessions** in addition to online sessions. Offline sessions will provide fellows with the opportunity to share their work with peers and foster peer-to-peer learning as a result. There is a need to develop a hybrid model (with both online and offline sessions).

- **Field visits** by the core team are a must. It helps to develop an understanding and sensitivity about the city, its people and their culture. It is also important that as an organisation that is conducting this fellowship, a representative must visit stakeholders in the city from time to time. Not only is this important for the visibility of the organization, but it ensures stakeholders that we are there to support them at every step.

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