International Journal of Social Science and Economic Research

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Environmental Justice in the Global South: Investigating the Links Between Green Space Decline and Respiratory Health Disparities in Mumbai and Cairo

Marwan Shawwra, Parinaaz Bains, Mariam Mohamed, and Joshya Mudaliar

Christ University

DOI: 10.46609/IJSSER.2025.v10i12.043 URL: https://doi.org/10.46609/IJSSER.2025.v10i12.043

Received: 29 November 2025 / Accepted: 19 December 2025 / Published: 30 December 2025

Introduction

"Urban green spaces are all urban land covered by vegetation of any kind."

- (Urban green spaces and health. Copenhagen: WHO Regional Office for Europe, 2016) The WHO's last updated definition of urban green spaces aimed to ensure enough vegetation in development zones to prevent health issues linked to environmental degradation. However, the lack of mandated per capita allotment gives governments an out, especially in the Global South, where deforestation and ecosystem attacks are justified in the name of development. This has created deep inequalities, where access to green space and, by extension, good health, is reserved for certain classes, despite many nations framing health as a human right. This research explores green space loss in Cairo and Mumbai, aimed at exposing the farce of sustainability in unequal urban landscapes.

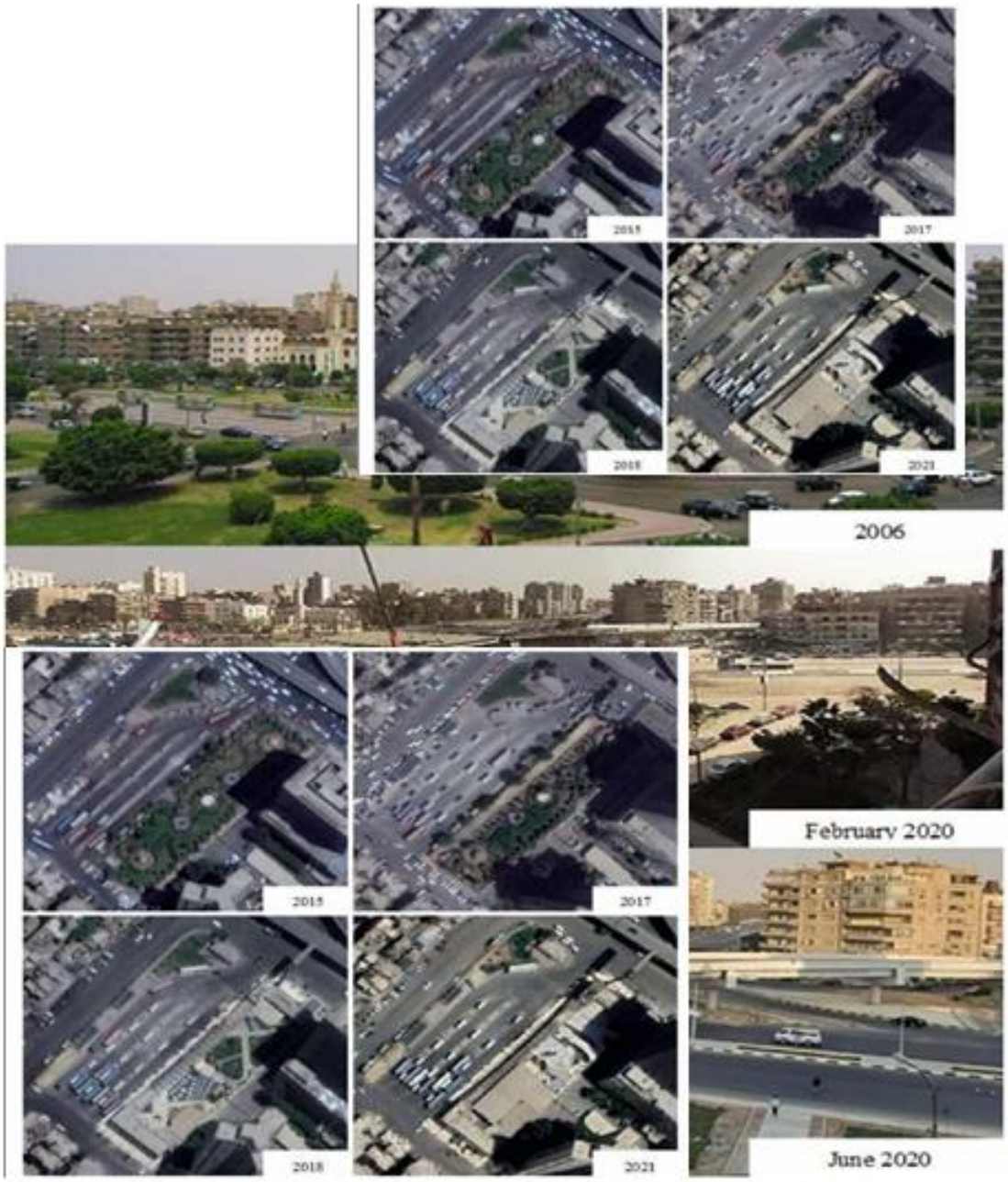
Cairo's Silent Heat Crisis: How the War on Trees Deepens Urban Inequality

During the exceptionally hot summer of 2023, the Egyptian government initiated prolonged energy blackouts affecting densely populated districts in Cairo for up to four hours daily. Concurrently, extensive tree removal occurred even in heritage- rich neighborhoods devoid of active development projects. This convergence of infrastructure failure and environmental degradation provoked widespread alarm across social media, broadcast media, and environmental organizations by June 202,4, with the wide observable obliteration of green areas hand-in-hand with historical sights (Hassan, 2024). Data from Salma Nasr Eldin (2024) indicate that from 2013 to 2023, Cairo lost approximately 1.06 million m² of urban tree cover, primarily due to road widening, commercial construction, and progressive desertification, with nationwide urban greenery losses exceeding 5 million m². Notably, tree felling persisted in areas such as Zamalek without official construction, suggesting non- infrastructural motivations (Nasr Eldin,

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

204).



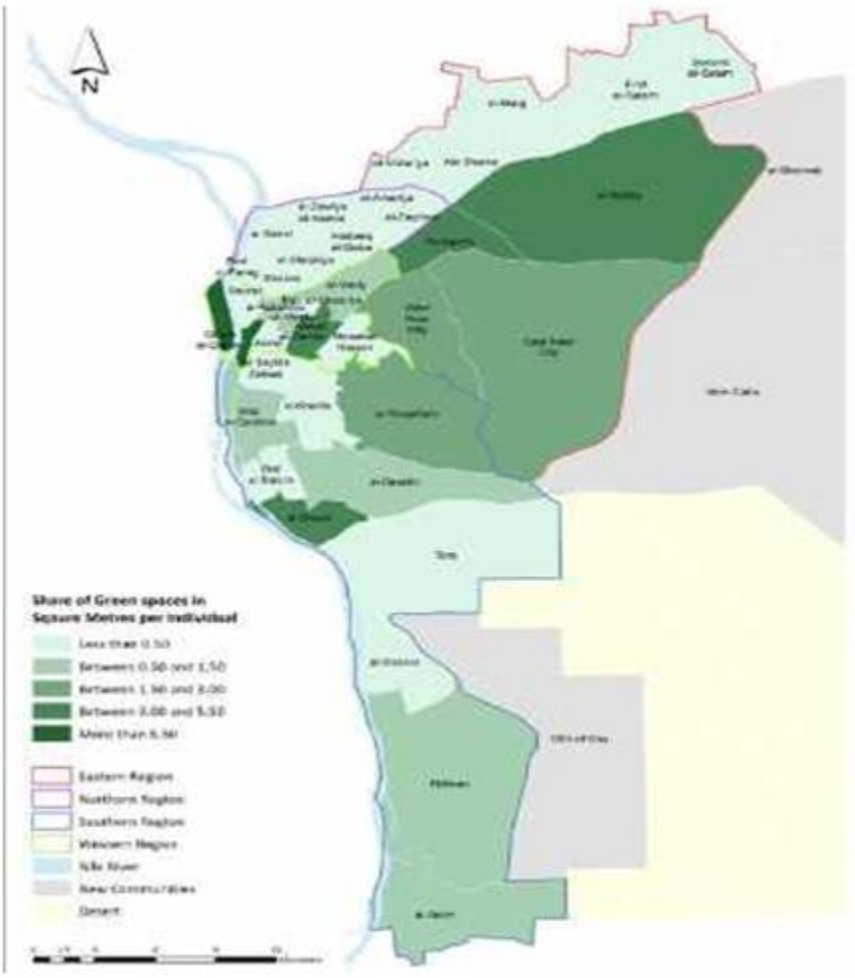
While unverified rumors circulated among residents about illicit timber trafficking, possibly to Israel, no evidence has substantiated these claims.

Instead, scholars such as Reham El Morally argue that widespread tree removal reflects a

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

deliberate state strategy to deter public congregation, or most probably adding more commercial space, turning it into profit-oriented areas. By eliminating shade, in a city where temperatures often reach 45 °C, and simultaneously widening streets and removing sidewalks, authorities render outdoor assembly increasingly unviable (El Morally, 2023). In their study on Urban Heat



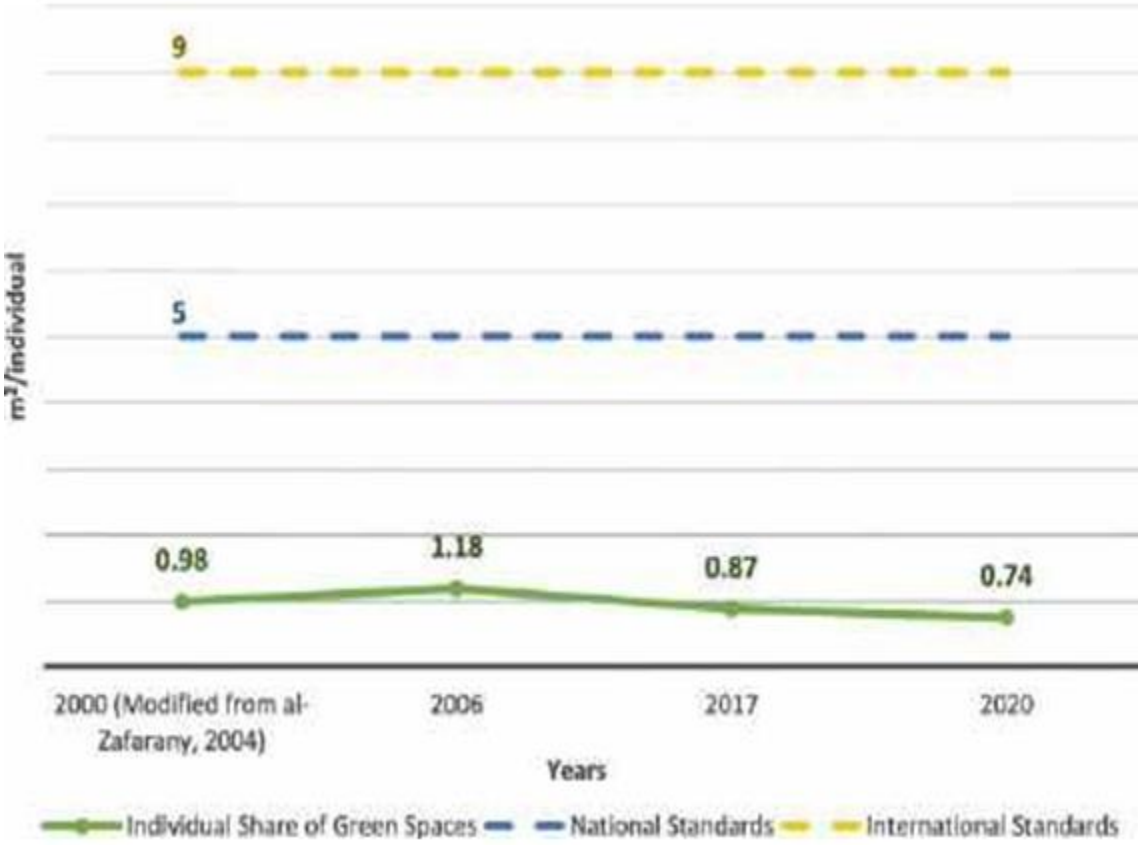
Island (UHI) formation in Greater Cairo, Athukorala and Murayama (2021) show how the removal of mature trees has intensified UHI effects. Using remote sensing data, they document an increase in impervious surfaces from 564 km² to 869 km² between 2000 and 2019, with nighttime temperatures rising by more than 2 °C. This loss of canopy cover deprives over ten million residents of natural cooling and exacerbates heat-related stress (Maher & Fouad, 2024).

Green space access in Cairo is sharply stratified along class lines. As of 2022, 22 of the city's 37 districts, home to two-thirds of its population, had less than 0.50 m² of green space per person, with some, like al-Matariya, as low as 0.01 m² (Aly & Dimitrijevic, 2022). In contrast, affluent

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

areas like Gharb al-Qahira, Maadi, Nozha, and Heliopolis exceeded 3 m². Nationally, green space per capita ranges from 0.74 to 1.65 m², far below the WHO's 9 m² minimum (Hassan, 2024). Meanwhile, massive green infrastructure is concentrated in the New Administrative Capital's gated zones, such as the Green River Park and New Central Park, together covering 2,509 ha, triple the size of Central Park (Maher & Fouad, 2024). These serve elites while neglecting older districts, deepening environmental exclusion (Aly & Dimitrijevic, 2022). Tree canopy over 35% can lower midday temperatures by up to 6 °C (Abdelmejeed & Gruehn, 2024), but such cover is absent in poorer areas, intensifying exposure to heat, pollution, and illness. Globally, Southern cities like Cairo receive only half the cooling benefits of green spaces, reinforcing environmental injustice (Li et al., 2024; Keleg, Watson, & Salheen, 2022).



These patterns highlight an urgent need for equitable urban greening. Interventions must prioritize the preservation of mature trees, ensure neighborhood-level distribution of green spaces, and foster inclusive governance with broad stakeholder engagement.

Without such measures, Cairo risks a bifurcated urban future, where deprived districts face escalating heat, pollution, and health crises, while privileged enclaves enjoy environmental

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

comfort. As the literature makes clear, equitable greening is not just an environmental or aesthetic concern, but a public health imperative demanding immediate policy action.

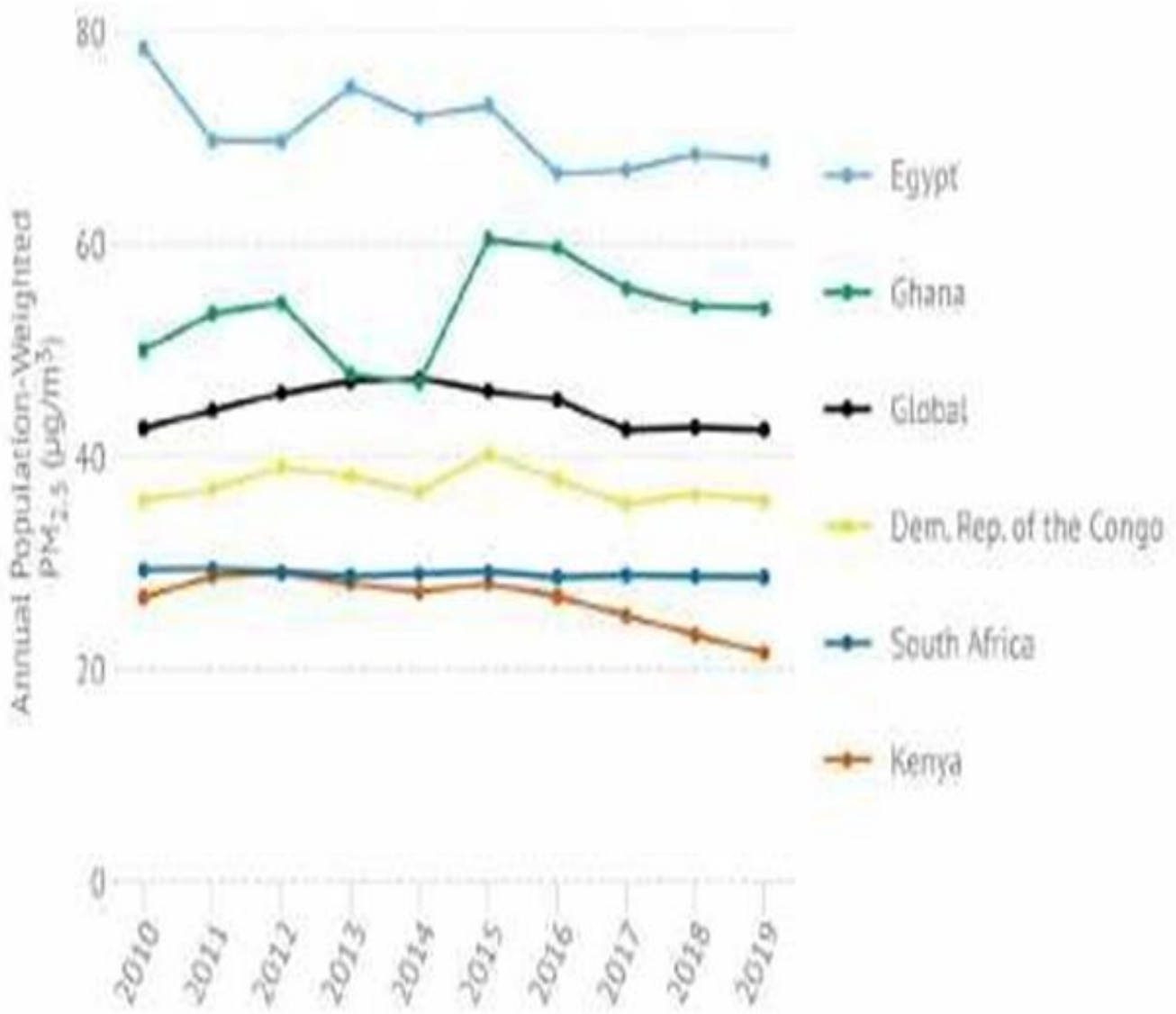
Environmental Decline and Public Health in Cairo: The Respiratory Cost of Green Space Loss

Cairo's hot, arid climate, often exceeding 35 °C, coupled with rapid urbanization, has led to a dramatic increase in the urban heat island effect. The city experiences daytime temperature differences of up to 7.8°C, driven by a sharp reduction in vegetative order (Abutaleb et al., 2015; Qureshi et al., 2024). Annual $PM_{2.5}$ concentrations have consistently exceeded WHO's guidelines. State of Global Air data show Egypt's $PM_{2.5}$ staying in the order of 70–80 µg/m³ between 2010 and 2019. This heavy particulate pollution, mostly from traffic, industry, and waste burning, caused an estimated 90,600 premature deaths in Egypt in 2019. The chart below, from State of Global Air, shows the persistently high $PM_{2.5}$levels in Egypt (blue line). These

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

levels have only slowly decreased, even with global trends. The data suggest significant health effects in Cairo, which has long been ranked as one of the world's most polluted cities.

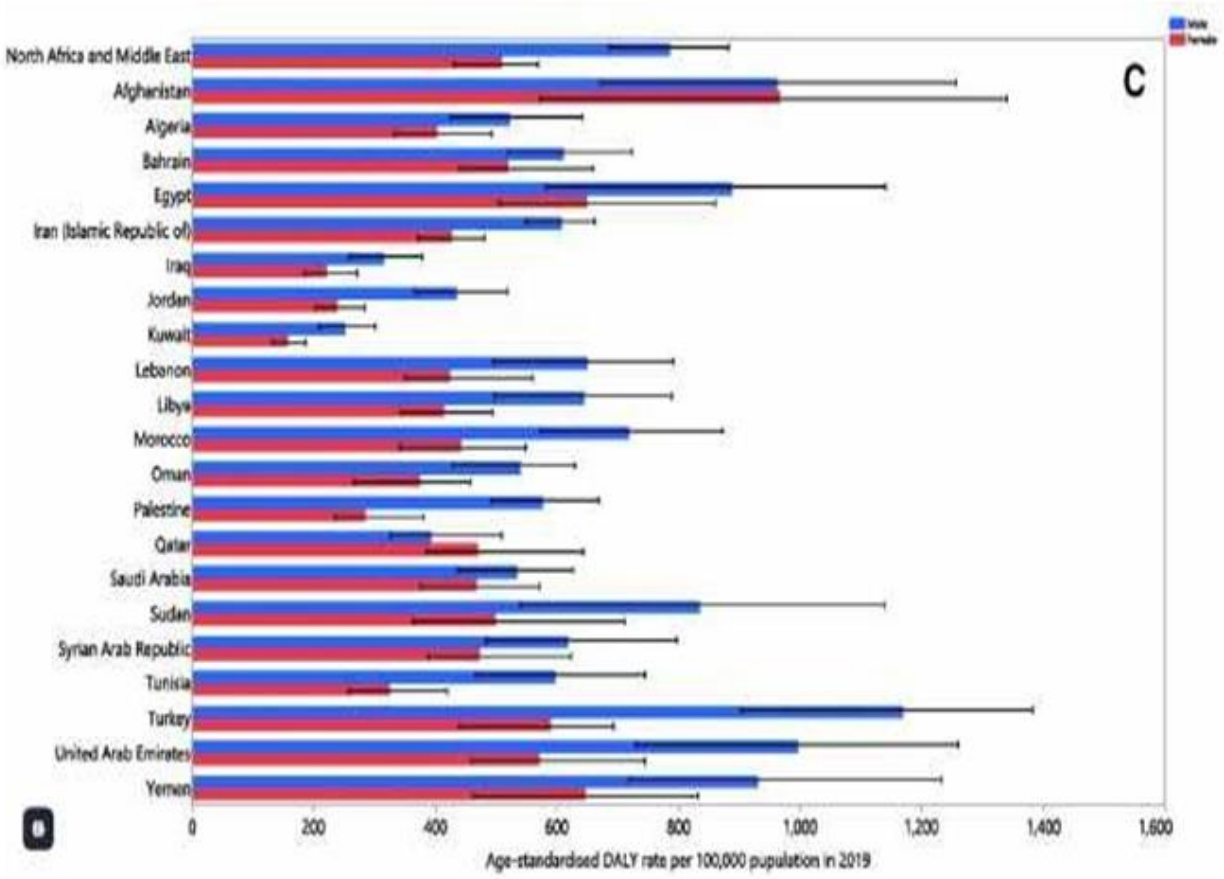


Pollutants in Cairo ($PM_{2.5}$, NO_2, SO_2) are caused by heavy traffic, industry, and burning. The highest death toll on the continent was mostly from Egypt, as it is considered one of the most polluted metropolitan areas in the world. Noncommunicable diseases account for about 82% of all deaths and 67% of premature deaths in Egypt. CODP and asthma are on the rise as well.

Egypt had the largest increase in COPD prevalence and the third-largest increase in COPD disability-adjusted life years worldwide between 1990 and 2019 (Feizi et al.,2022).

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"



COPD and asthma: The problem of chronic lung disease is growing in Cairo. Researchers link much of this increase to air pollution exposure. For instance, GBD data show that ambient $PM_{2.5}$ is the second-leading risk for COPD after smoking. Egypt's rise in COPD cases corresponds with its highly polluted urban air (Feizi et al., 2022).

Acute respiratory infections: Hospital data from Cairo reveal a significant number of asthma and bronchitis cases. While exact trends are limited, modeling studies suggest that even brief spikes in SO_2 and NO_2 from vehicles and industry lead to noticeable increases in asthma and COPD hospital admissions (Heger et al., 2019).

Vulnerable populations: Children and the elderly are the most affected. WHO analyses emphasize that polluted urban air significantly raises pediatric asthma and pneumonia rates. The evidence shows a connection between Cairo's environmental changes and its respiratory health issues. Decreasing green spaces and increasing air pollution have gone hand in hand with a rise in lung diseases. Many studies highlight that exposure to airborne particulates is closely related to the rates of asthma and COPD (Feizi et al., 2022). This overlap of environmental and health

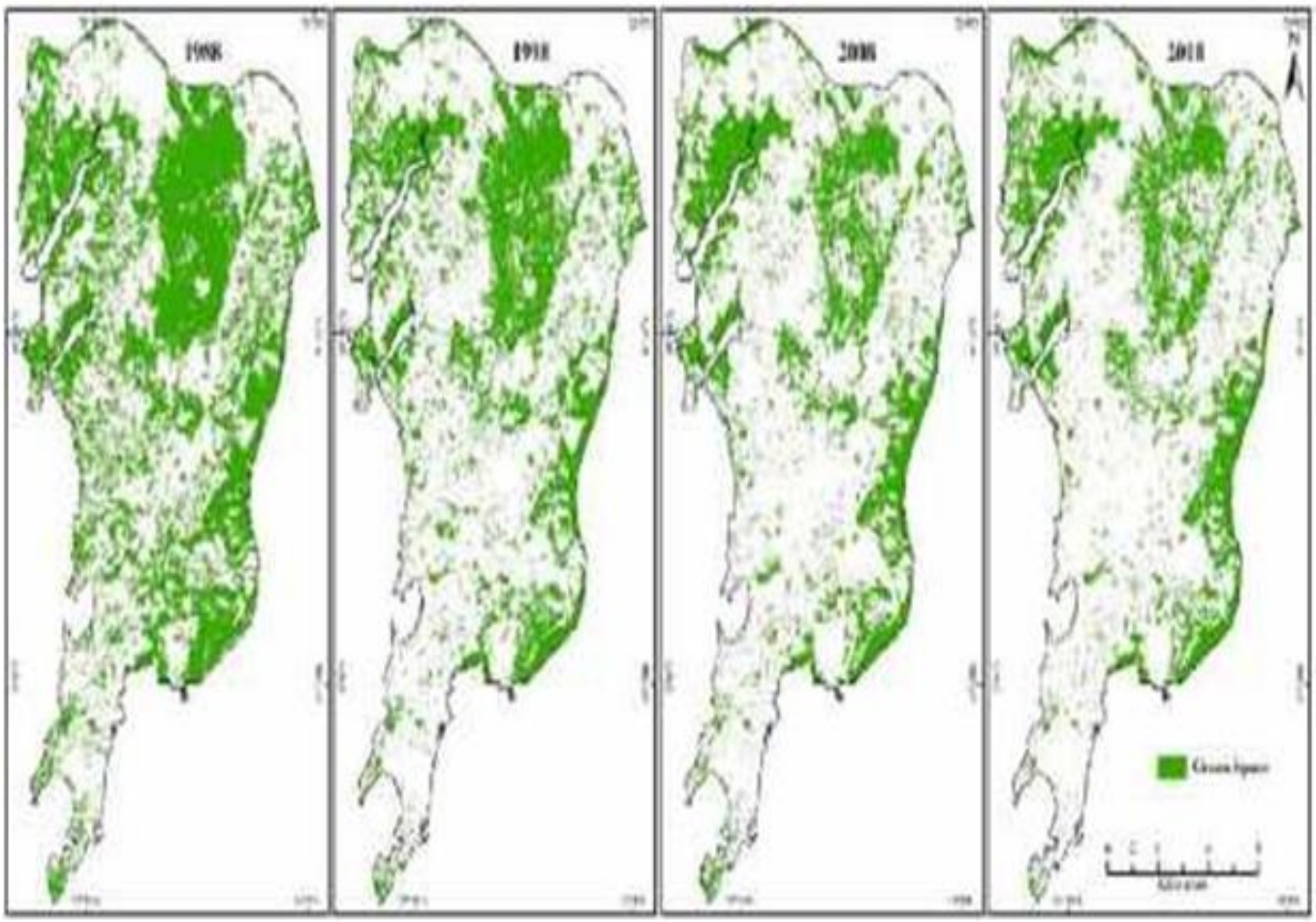
ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

data strongly indicates that the loss of green space and high air pollution are major factors in the increasing rates of respiratory diseases in Cairo.

The Politics of Urban Green Spaces in Mumbai

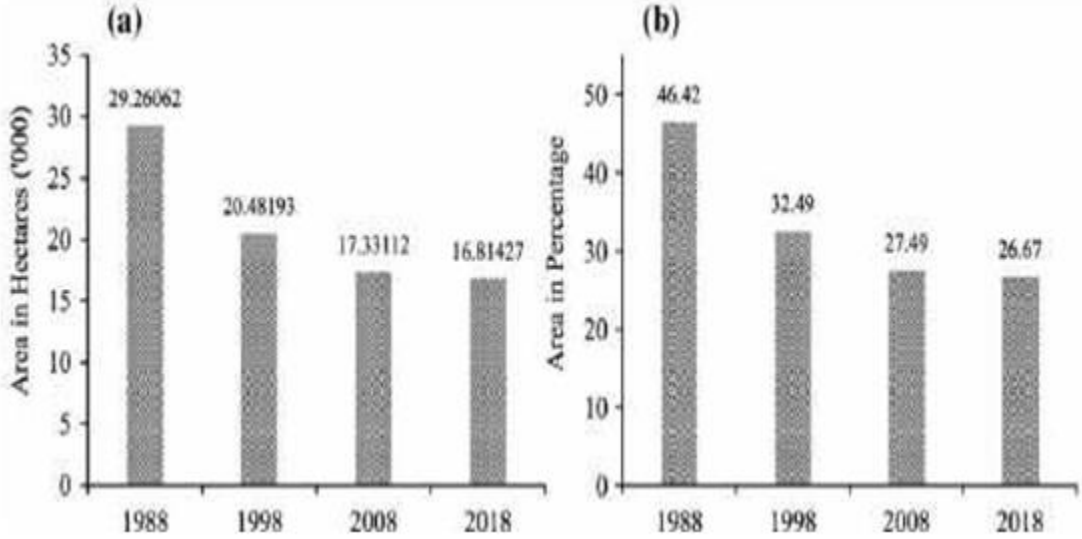
The political dynamic changes have correlated with the depletion of green spaces in Mumbai. The metro car shed project was sanctioned in 2014 under the BJP-led Maharashtra government led by Chief Minister Devendra Fadnavis. In 2019, when Chief Minister Uddhav Thackeray led the Maha Vikas Aghadi (MVA) coalition, which included the Shiv Sena, Congress, and NCP, to take political power, the project was relocated to Kanjurmarg, as saline, unused land (Choudhury, 2022). However, a split within the Shiv Sena resulted in a new coalition led by Eknath Shinde and supported by the BJP. One of their earliest implemented policy reversals was to reinstate the metro car shed project at Aarey.



ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Map representing the reduction of green spaces in Mumbai from 1988 to 2018)



Charts representing the depletion of green spaces in Mumbai from 1988 to 2018, in land coverage in hectares and percentage, respectively.

In October 2019, when the Bombay High Court dismissed multiple petitions on Friday against the tree cutting, just as Mumbai entered the weekend and Dussehra holidays. The timing became an advantage for project proponents, as the Supreme Court registry remained closed, preventing immediate escalation of the case (Bhathena, 2022). In this brief period, over 2,141 trees were cut within a span of 48 hours. This rapid felling followed mass protests, and the end of Section 144. The Supreme Court of India intervened and issued a temporary halt on October 7, 2019, on further tree felling. However, the damage had already been inflicted during the High Court's open window.

The marginalised Warli, Kokna, and Varli Adivasi communities that resided in and around Aare.y While they had rights under the Panchayats (Extension to Scheduled Areas) Act, 1996, and the Forest Rights Act, 2006, their claims to land were overlooked (Menon, 2019). They were not allowed to attend EIA public hearings, and their testimonies were rarely used in project evaluations. Not only did the depletion of their forest habitat disrupt their economic livelihoods, but it also took away their cultural and religious attachments to the land. The community would now be more likely to be prone to flooding due to Aarey being situated in the Mithi River basin. It was about conservationism and crony capitalism for the elite and protection for the poor.

One of the main defence points put forth by the Brihanmumbai Municipal Corporation (BMC) and the Mumbai Metro Rail Corporation Limited (MMRC) was the transplantation of trees to

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

make up for the loss of green space in Aarey; However, on-site evaluations by environmental activist Zoru Bhathena demonstrated that the transplanted saplings had meagre survival rates, due to inadequate aftercare and unsuitable relocation (Bhathena, 2022).

Deforestation and Disease: Mumbai's Worsening Respiratory Burden

Virus	Primers and probes	Seque
Seasonal influenza A	Forward	GAC
	Reverse	AGG
	Probe	TGC
Pandemic influenza A H1N1	Forward	GCA
	Reverse	GTG
	Probe	CYA
Influenza type B	Forward	TCC
	Reverse	CGG
	Probe	CCA
Rnase P	Forward	AGA
	Reverse	GAG
	Probe	TTC
hMPV	Forward	GTC
	Reverse	CAG
RSV	Forward	CTG
	Reverse	ACC
Streptococcus pneumoniae	Forward	CGG
	Reverse	GTT
Haemophilus s influenzae	Forward	TCC
	Reverse	TGA
Staphylococcus aureus	Forward	AAT CTT TGT CGG TAC ACG ATA TTC TTC ACG
	Reverse	CGT AAT GAG ATT TCA GTA GAT AAT ACA ACA
Klebsiella pneumoniae	Forward	GCG TGG CGG TAG ATC TAA GTCATA
	Reverse	TTC AGC TCC GCC ACA AAG GTA

RSV: Respiratory syncytial virus, hMPV: Human metapneumoviruses

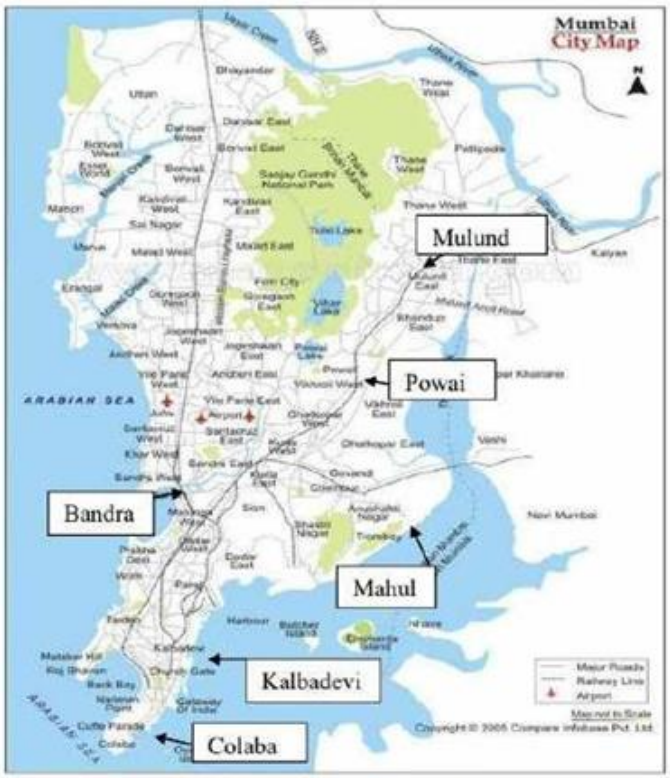


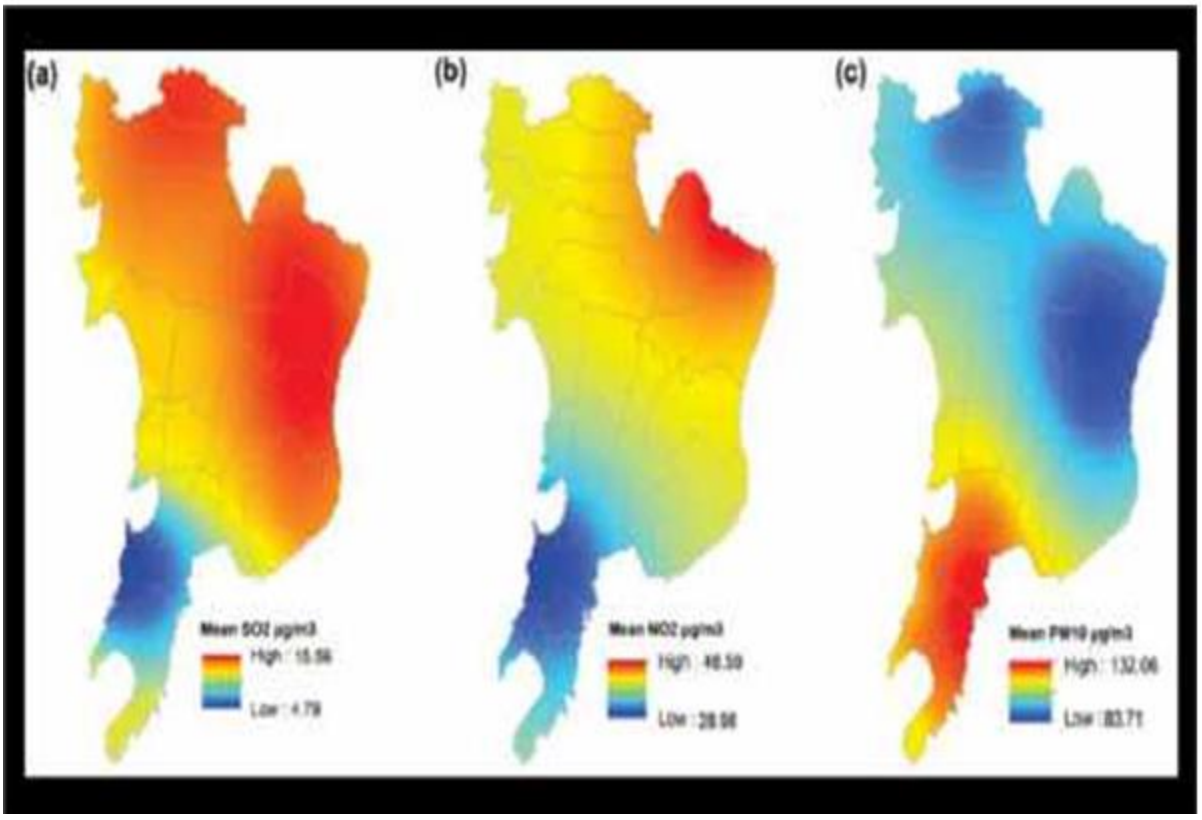
Figure 2.1(a): Air Quality Monitoring Locations at Mumbai City

Greenspace calculated through NDVI (Normalized Difference Vegetation Index) has been associated with asthma prevalence, especially in areas with high PM_{10} levels. Mumbai's poor air quality and the consequent respiratory disease management challenges are often overshadowed by more tangible effects of climate change, such as seasonal flooding. Moreover, when compared to the national capital's AQI level, Mumbai is frequently perceived as a more sustainable city, despite its AQI exceeding safe limits. Surveillance of acute respiratory infections in Mumbai it is observable that climate change affects both virus stability and host immunity. RT-PCR tests in such regions may show higher viral loads (Chavan et al. 2015).

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Variations in ambient temperature and humidity can alter viral RNA stability, host immune responses, and the efficiency of viral polymerase activity, all of which impact transcription (Carlson et al., 2022). Deforestation and urban expansion increase human-wildlife interfaces, creating novel zoonotic spillover opportunities for viral pathogens, while also changing vector dynamics. In bacterial pathogens like Streptococcus pneumoniae, Haemophilus influenzae, Staphylococcus aureus, and Klebsiella pneumoniae, warmer and more humid environments promote bacterial persistence in the environment and nasopharyngeal colonization in humans (Wu et al., 2016). On a molecular level, the nucleotide chains link through phosphodiester bonds between the 3'-hydroxyl and 5'-phosphate groups of sugar moieties in nucleotides. These linkages are essential for the stability of the viral genome and are sensitive to thermal degradation, making them highly reactive to climate variability, causing them to mutate (Carlson et al., 2022; Wu et al., 2016; Chavan e,t al., 2015).



The temporal trends in Mumbai show fluctuating levels of disease incidence corresponding closely with pollution peaks, particularly in years where PM_{1}▪ concentrations were at their highest (Nanavare, 2024). The maximum number of cases across all categories occurred in 2006, coinciding with peak PM_{1}▪ concentrations in Mumbai that year; this was following the 2005 floods in Mumbai that had significantly altered local ecosystems (Maji et al., 2016). The Warli

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

community also reports a decline in traditional forest-based healing practices and an uptick in respiratory infections. A study by Menon (2019) highlights the constitutional violation of environmental rights in such urban development initiatives, where Adivasi voices were systematically excluded from planning processes. Despite constitutional protections under the Forest Rights Act (2006), tribal access to forest resources continues to diminish, with 78% of Adivasi households in north Mumbai reporting increased medical expenses due to pollution-induced illnesses by 2022 (Choudhury, 2022).

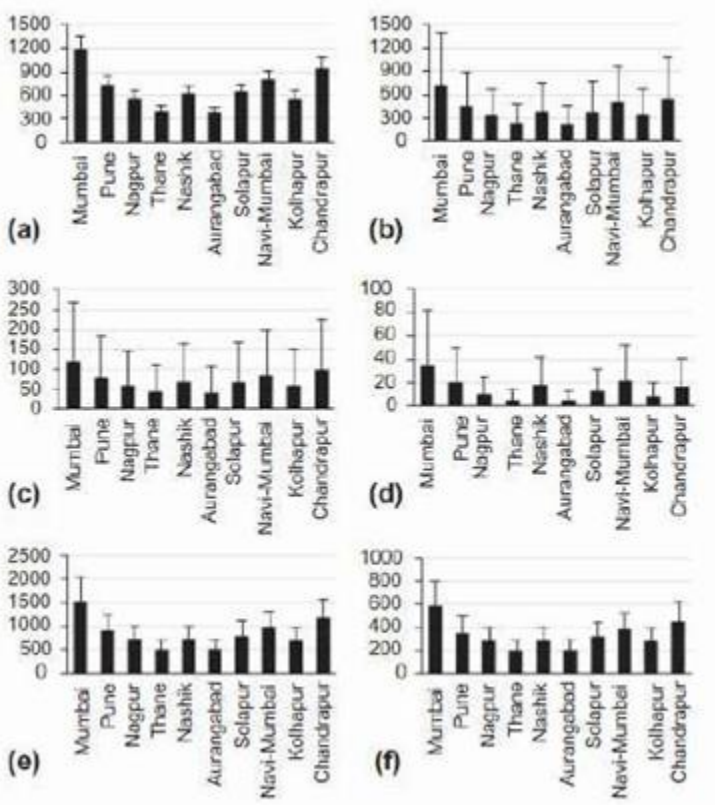


Figure 7. Annual average ENCs in one million of population of (a) TM, (b) CM, (c) RM, (d) COPD (hospital admission), (e) HARD, and (f) HACD in different urban cities in Maharashtra.

The charts have illustrated a profound association between air pollution and increased morbidity and mortality related to respiratory and cardiovascular diseases in Mumbai. Health conditions such as total mortality (TM), cardiovascular mortality (CM), respiratory mortality (RM), and COPD hospital admissions have been directly correlated with deforestation for integrating infrastructure (Maji et al., 2016). This irrefutable link between the decreasing green space allocated area and adverse health conditions is often misrepresented and depicts an obfuscated image to the citizens to lure in a false sense of safety when dealing with the climate crisis, while silencing vulnerable communities.

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Policy Recommendations for Addressing Environmental Health Inequities

These reforms support SDGs 3, 10, 11, and 13, targeting health equity, reduced inequality, sustainable urbanization, and climate resilience.

1. Urban Ecological Equity Act (UEEA), 2025

This legislation mandates a minimum of 9 m² of accessible green space per capita, in line with global health benchmarks (World Health Organization [WHO], 2010). It emphasizes the creation of Green Health Overlay Zones in ecologically and medically vulnerable wards, prioritizes urban rewilding, and ensures NDVI-based monitoring of green cover (Nanavare, 2024). Additionally, it safeguards tribal land rights under the Forest Rights Act (Ministry of Tribal Affairs, 2006), reinforcing ecological stewardship by indigenous communities.

2. Amendment to the Environment (Protection) Act, 1986

An amendment to the existing Environment (Protection) Act is recommended to embed Health Impact Assessments (HIA) within all Environmental Impact Assessments (EIAs), with a focus on respiratory disease burdens in low-income settlements (Maji et al., 2016). It calls for the designation of No-Go Ecological Commons in forested tribal regions (Menon, 2019), sets climate risk thresholds, and introduces veto power for Gram Sabhas under the PESA Act (1996) to strengthen democratic ecological governance.

3. Greening Cairo, Equally. Amendment to "Vision 2030"

To tackle Cairo's heat crisis and green space inequality, "Vision 2030" must adopt a Neighborhood Green Equity Index, ensuring 3 m² of greenery per capita in all districts. Halt tree removal in dense areas and launch a public forestry program to preserve canopy cover and reach 35% coverage. Prioritize greening older neighborhoods over gated projects. A cross-ministerial task force with civil society should oversee this. Launch a grassroots campaign encouraging residents to plant on balconies and near homes, supported by free seedlings and water-saving kits. Greening is vital for climate justice and public health as Cairo faces rising heat.

4. Launching Ambitious Green Cairo through EBRD

The European Bank for Reconstruction and Development program (2025-2027) is recommended to look into Cairo's shrinking green spaces and respiratory health problems. The initiative seeks to turn Cairo into a sustainable city by expanding vulnerable neighborhoods such as Helwan through prioritizing clean transport projects and reducing pollution. (Yousef, 2025)

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Conclusion

This research underscores how unregulated urban expansion has intensified environmental degradation, reduced green cover, and deepened health inequities in adversely targeting vulnerable populations. These patterns reflect broader Anthropocene dynamics, marked by the "Great Acceleration" in human activity and urban-industrial growth since the 1950s (Singh, 2023). The resulting socio-ecological fragmentation, therefore, demands urgent policy interventions to realign urban development with principles of sustainable development practice and equitable access to green infrastructure.

References

Abdelmejeed, A. Y., & Gruehn, D. (2024). Optimizing an efficient urban tree strategy to improve microclimate conditions while considering water scarcity: A case study of Cairo. *Discover Sustainability, 5*, 66.

Air pollution and health impacts in Africa | State of Global Air. (n.d.). *State of Global Air*. https://www.stateofglobalair.org/resources/africa

Aly, D., & Dimitrijevic, B. (2022). Public green space quantity and distribution in Cairo, Egypt. *Journal of Engineering and Applied Science, 69*(15). https://doi.org/10.1186/s44147-021-00067-z

Athukorala, D., & Murayama, Y. (2021). Urban Heat Island Formation in Greater Cairo: Spatio-Temporal Analysis of Land Surface Temperatures. *Remote Sensing, 13*(7), 1396.

Banerjee, S., & Mhatre, P. (2021). Urban land and the capitalist city: Redevelopment, displacement, and exclusion in Mumbai. *Urban Studies, 58*(3), 529–547.

Bhathena, Z. (2022). The Aarey Forest conflict: Urban green spaces and civic resistance in Mumbai. *Journal of Urban Affairs, 44*(4), 590–606.

Bhide, A. (2013). Urban infrastructure and governance: The role of the state in Mumbai. *Environment and Urbanization Asia, 4*(1), 167–184.

Carlson, C. J., Albery, G. F., Merow, C., Trisos, C. H., Zipfel, C. M., Eskew, E. A., Olival, K. J., Ross, N., & Bansal, S. (2022). Climate change increases cross-species viral transmission risk.

Nature, 607(7919), 555–562. https://doi.org/10.1038/s41586-022-04788-w

Chatterjee, M. (2019). Climate vulnerability and green space decline in Mumbai: An urban environmental assessment. *Sustainable Cities and Society, 47*, 101485.

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Chavan, R., Kothari, S., Zunjarrao, K., & Chowdhary, A. (2015). Surveillance of acute respiratory infections in Mumbai during 2011–12. *Indian Journal of Medical Microbiology*, *33*(1), 43–50. https://doi.org/10.4103/0255-0857.148376

Choudhury, S. R. (2022). Mumbai's green policy reversals: Political cycles and environmental governance. *Asian Journal of Political Science, 30*(2), 206–225.

Deshpande, R. (2018). The changing face of Mumbai: Infrastructure, liberalization, and urban development. *Economic and Political Weekly*, *53*(49), 43–50.

Effat, H. A., & Hassan, O. A. K. (2014). Change detection of urban heat islands and some related parameters using multi-temporal Landsat images: a case study for Cairo city, Egypt. *Urban Climate*, *10*, 171–188. https://doi.org/10.1016/j.uclim.2014.10.011

Feizi, H., Alizadeh, M., Nejadghaderi, S. A., Noori, M., Sullman, M. J. M., Ahmadian Heris, J., Kolahi, A.-A., Collins, G. S., & Safiri, S. (2022). The burden of chronic obstructive pulmonary disease and its attributable risk factors in the Middle East and North Africa region, 1990–2019. *Respiratory Research*, *23*(1). https://doi.org/10.1186/s12931-022-02242-z

Ghosh, S. (2015). Vembanad estuary: Ecology, threats and conservation. *Wetlands International South Asia Report Series.*

Hassan, M. (2024, June). *The oppression of trees in Egypt.*

Heger, M., Zens, G., & Meisner, C. (2019). Particulate matter, ambient air pollution, and respiratory disease in Egypt. *World Bank*. https://openknowledge.worldbank.org/entities/publication/8ca66120-0446-5535-add1-49e190269cdf

Jainer, D. (2020). *National Plan for Conservation of Aquatic Ecosystems (NPCA)*. Ministry of Environment, Forest and Climate Change, Government of India.

Keleg, M. M., Watson, G. B., & Salheen, M. A. (2022). A critical review of Cairo's green open spaces dynamics as a prospect to act as placemaking anchors. *Urban Design International*, *27*(3), 232–248.

Kumar, P. (2022). Urban growth and environmental degradation: A comparative study of Mumbai and other megacities. *Journal of Environmental Management*, *307*, 114550.

Li, Y., et al. (2023). Global inequality in cooling from urban green spaces and its climate change adaptation potential. *arXiv*. https://doi.org/10.48550/arXiv.2307.09725

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Maher, H., & Fouad, H. (2024, August 8). Erosion of Cairo's green space leaves residents exposed to searing heat.

Maji, K. J., Dikshit, A. K., & Deshpande, A. (2016). Human health risk assessment due to air pollution in 10 urban cities in Maharashtra, India. *Sustainable Environment, 2*(1), 1193110. https://doi.org/10.1080/23311843.2016.1193110

Menon, M. (2019). The legal battles of Aarey: Constitutional arguments and environmental justice. *India Law Review, 3*(2), 145–164.

Mumbai ranks 5th in annual deaths due to air pollution: Global study. (n.d.).The *Times of India*. https://timesofindia.indiatimes.com/city/mumbai/mumranks-5th-in-annual-deaths-due-to-air-pollution-globalstudy/articleshow/81099733.cms

Nanavare, R. T. (2024). Impact of air pollution on respiratory health: A case study in Mumbai, India. *International Journal of Medical and Health Research, 10*(1), 52–56. https://www.medicalsciencejournal.com/assets/archives/2024/vol10issue1/10009.pdf

Nasr Eldin, S. (2024). Egypt's war on trees: The hidden costs of urban expansion.

Noncommunicable diseases. (n.d.). *World Health Organization - Regional Office for the Eastern Mediterranean*. https://www.emro.who.int/egy/programmes/noncommunicable-diseases.html

Pimenta, G. (2019). Tree felling in Mumbai: An environmental crisis in numbers. *Mumbai Environmental Reports, 5*(3), 12–18.

Ramanathan, U. (2017). Green governance failures in Indian cities: The case of Mumbai. *Urban Studies, 54*(12), 2766–2782.

Salvi, S., Kumar, G. A., Dhaliwal, R. S., Paulson, K., Agrawal, A., Koul, P. A., Mahesh, P. A., et al. (2018). The burden of chronic respiratory diseases and their heterogeneity across the states of India: The Global Burden of Disease Study 1990–2016. *The Lancet Global Health, 6*(12), e1363–e1374. https://doi.org/10.1016/s2214-109x(18)30409-1

Singh, B., & Parmar, M. (n.d.). *Resilience and Southern Urbanism: Towards a new paradigm* (Dr Tigran Haas, Michael W. Mehaffy, PhD, Erik Berg, BA, MA, MSc (t), Ashraf M. Salama, & Dr Ombretta Romice, Interviewers).

United Nations. (2022). *WHO green space minimum standards (9 m² per capita).*

World Health Organization. (2010). *Urban green spaces and health: A review of evidence*. WHO Regional Office for Europe.

ISSN: 2455-8834

Volume:10, Issue:12 "December 2025"

Wu, X., Lu, Y., Zhou, S., Chen, L., & Xu, B. (2015). Impact of climate change on human infectious diseases: Empirical evidence and human adaptation. *Environment International*, *86*, 14–23. https://doi.org/10.1016/j.envint.2015.09.007

Yousef, M. (2025, May 20). EBRD and Egypt launch ambitious “Green Cairo” plan to transform capital into sustainable metropolis. *Top 50 Women Forum*. https://top50women.com/ebrd-and-egypt-launch-ambitious-green-cairo-plan-to-transform-capital-into-sustainable-metropolis/

