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COMPARATIVE ANALYSIS OF AIR QUALITY INDEX, PER CAPITA INCOME AND LIVEABILITY INDEX: LESSONS FROM INTERNATIONAL METRO CITIES AND THE WAY AHEAD OF INDIAN URBAN DEVELOPMENT

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ABSTRACT

In this research paper, the comparative analysis will be done on Air Quality Index (AQI), per capita income and liveability index of 9 of the world metropolitan cities (New York, London, Singapore, Dubai, Zurich and Hong Kong) and three of the Indian metropolitan cities (Pune, Mumbai and Delhi). The multi-dimensional model used in the paper is founded on the information disclosed by IQAir World Air Quality Report 2024, the Economist Intelligence Unit (EIU) Global Liveability Index, the Mercer Quality of Living Rankings, the World Bank, and Numbeo Cost of Living indices among other effective sources. Strong correlations of air quality, economic prosperity and liveability are also found in the paper, although there are also outliers, including good metro infrastructure in the world and poor air quality in Delhi, which is also important. The best practices that other countries have been able to adopt such as London Ultra Low Emission Zone, Singapore Vehicle Quota System, congestion pricing in New York and integrated transit model in Zurich are researching and analyzing how they would be applied in the Indian context. The paper ends by giving a progressive recommendation framework of 02 years and 5 years (5-15 years) of interventions with a specific recommendation for Pune, Mumbai and Delhi cities.

KEYWORDS: *Air Quality Index (AQI), Livability Index, Per Capita Income, Urban Development, Sustainable Cities, Comparative Analysis.*

1. INTRODUCTION

1.1 Background and Rationale

Urbanisation is among the phenomena of the twenty-first century. It is approximated that the world in the year 2050 will have its urban population approximated to 68 per cent of the total population. In July 2025 with the statistics published by the World Bank, India will almost reach almost 951 million in urban areas in 2050. Such a shift in population that has followed has burdened urban systems in ways never experienced before: air quality, economic opportunity, housing, transport, healthcare and green spaces. All of these are being sought to multiply in regard to greater populations.

The good of the city living can never be measured as one way. The direct population, economic and life impacts of air quality exist. The availability of the services and facilities is determined by the purchasing power and the per capita income. Stability, healthcare, education, infrastructure and cultural environment are combined to give the product stability, which is the liveability index to give a comprehensive assessment of the urban life. A combination of the three dimensions would help to understand the urban wellbeing better in comparison to the individual indicator.

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Figure 1: IAQ level in different Indian cities

Though the economic growth rate in the Indian metro cities is good at 7 per cent yearly, they still lag a long way behind the international standards of liveability. Delhi as the capital of the world has a 18-21 times the WHO standard of PM2.5. Mumbai is the financial capital of India as well as the least with 1.2 square metres of green space per capita of the nine cities that were considered. Nevertheless, impressive results are also observed in the Indian cities: the Delhi metro network is the most prosperous in the world with 394 kilometres, IT exports in Pune have grown twice within five years, and the number of stubble burning in Punjab and Haryana has decreased by 90 per cent since the year 2022.

1.2 Objective of the Study

1. To give a strict comparative analysis of AQI, per capita income and livability in six foreign and three Indian metropolitan cities with the latest accessible data of 2024 and 2025.
2. To be able to determine and record transferable best practices in overseas cities that have effectively enhanced air quality, financial results, and liability.
3. To suggest a step-by-step, practical recommendation system that can be accurate to the particular situations of the cities of Pune, Mumbai and Delhi.

2. Review of Literature

The existing literature on the topic of urban development yields the complexity of the relationships between the quality of the environment, economic wellbeing, and overall livability. These dimensions were studied individually at the global and national level; however, there is limited literature on the issue, which centers on air quality, income, and livability. The study relies on the extensive range of the reports, institutional databases, and policy documents to create the comprehensive portrait of the issue. Air quality has become one of the determinants of city health and viability. As the IQAir World Air Quality Report (2024) indicates, the proportion of cities around the globe that meet the standards provided by the World Health Organization on PM2.5 is extremely low, and it implies that the given environmental concern is prevalent[1]. Simultaneously, the government of UK releases the information that long term fluctuations in the concentration of the PM have become better due to the high-level control policies and the regulation measures that are being implemented[2]. Those outcomes indicate the topicality of the policy interventions that are long-term and can be used to reduce the rates of pollution.

The city level policy programs are also widely analyzed. As it has been established in the case of the London Ultra Low Emission Zone (ULEZ) Report (2025), a certain kind of transport policy

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can result in a significant reduction of the amount of emissions and encourage the quality of air[3]. The air pollution indexes of NEA and Singstat published in Singapore indicate that the level of air pollution is quite manageable in the country, despite the fact that such transboundary problems as haze still affect the outcomes[4]. Quite the contrary, the studies carried out by the Centre of Science and Environment (CSE) have shown that although the levels of PM2.5 in the Indian cities are somewhat improving, they are still high[5]. The updates regarding the National Clean Air Programme (NCAP) also suggest that, even though the situation in such cities like Pune is getting better, the overall results are not so good due to the challenge of the implementation[6]. Livability has been highly determined through global indices. The Economist Intelligence Unit (EIU) Global Liveability Index (2024 and 2025) is a universal framework to identify the quality of life in the city in stability, healthcare, infrastructure, education, and environment[7][8]. The cities like Zurich and Singapore have always topped these reports and the Indian cities have been ranked at the bottom primarily due to absence of proper infrastructure and quality of the environment. Similarly, the scores on governance, safety and public services in influencing the outcome of livability are also attested by the Mercer Quality of Living Rankings (2024)[9].

The urban life is also highly dependent on the economic conditions. Numbeo Cost of Living Index (2025) shows that the cost of living and purchasing power are not only large in the cities, but high nominal income does not necessarily result in high affordability[10]. According to research performed at Oliver Wyman forum (2024), the importance of urban mobility and the efficiency of transport is observed in enhancing the economic productivity and livability[11]. The statistics of the CEIC, the Trading Economics and other economic databases also confirm the fact that the income gap between the developed and the developing cities is large in nature, and that cities like Singapore and Zurich have an extremely high GDP per capita than the cities in India[12][13][14][15]. Recent literature is also concerned with the effects of specific policy interventions. The publications of the program of congestion pricing in New York illustrate the obvious positive changes in the traffic system, air quality, and health of citizens[16]. This perspective has been supported by academic literature as research by Cornell University and National Bureau of Economic Research (NBER) has demonstrated that with congestion pricing, the level of pollution and congestion can be reduced by a colossal amount[17][18]. Similarly, the example of the model of the public transport in Zurich has been a famous one as an example of the sustainable urban mobility in which there is high utilization of the public transport as compared to the individual vehicles[19].

Economic development strategies is another important area of research. The Economic Development Board (EDB) in Singapore lays stress on the significance of the integrated industrial policy, as well as encouragement of investment in the economic development and employment[20]. D33 economic agenda of Dubai demonstrates the way diversification and innovation can enhance the stability of the economy[21], considered as the UAE Nationally Determined contributions (NDC 3.0) still emphasize the necessity to educate the economic planning with the need to take into consideration the environmental sustainability[22]. The fact that Switzerland has obtained a high score in the Global Innovation Index is also the reason why ecosystems of innovation are important in supporting high-income, high-livability cities[23]. The sustainability and planning of the cities are also features that the literature pays a lot of attention to. Simplistically the Green Plan 2030 of Singapore embodies plans of how the green spaces and the nature of the surrounding can be integrated in urban development[24]. On the same note, the Green Infrastructure Plan of Transport for London emphasizes the importance of urban greenery in enhancing environmental quality and the well-being of the people[25]. The indicators of environmental performance applied around the world including those formulated by Yale University have heavily relied on the role played by the healthcare of sanitation and the environmental health in the assessment of the standards of living[26]. The urban development issues in India are appropriately reported. The Urban Resilience Report (2025) by the World Bank reported that the lack of infrastructure, governance problem, and high urbanisation are among the issues that afflict Indian cities[27]. Reportedly, according to CREA on the National Clean Air Programme, the gains have not been consistent and there are cities, which have been able to achieve some gains in curtailing the pollution as compared to others that are still struggling to grapple[28]. The activity aimed at the development of infrastructure such as the project of developing the Mumbai Metro Line 3 can be regarded as an attempt to improve the movement of the urban environment and reduce the traffic jams[29]. The government initiatives like Smart Cities Mission and PMAY-Urban have also been analyzed with the help of various reports. Against the official data that presupposes an enormous investment and development, one can single out the independent appraisals that reflect the issues of the implementation, coordination, and performance[30][31][33]. The positive effects on the environment, such as the reduction of the number of stubble burning, demonstrate that targeted interventions can yield positive results in the case which is applied well[32]. Budgetary reviews and policy reviews also reveal the need to spend more and institutional reforms based on urban development[34][35]. Research that is conducted locally is very informative as well. Reports of the air quality of Hong Kong indicate that there are positive developments that are long-term due to high emission regulation and in regional cooperation[36], as its status as a financial powerhouse in the world is put on the table with reports on economic performances[37]. Social indicators of crime level and availability to green spaces are also reported by Numbeo and HUGSI and they are used to display how much safer and environmental facilities make the place livable [38][39].

3. RESEARCH METHODOLOGY

3.1 Research Design and Approach

The research design in the study is a comparative and analytical research design because the researcher is interested in the correlation between Air Quality Index (AQI), per capita income and the livability index between the selected metropolitan cities.

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It is not only to present the data, but to analyze tendencies and make the corresponding conclusions between the condition of the environment, the economy, and the overall quality of life. The design is constructed in such a manner that it does not need to make a systematic comparison of developed metropolitan cities in the global universe and the emerging Indian metropolitan cities and therefore provides both the global and contextual insights.

The nature of the study is quantitative, as it will involve the use of the numerical variables such as PM 2.5 concentrations, GDP per capita, and livability scores. However, it can also be taken as an analytical interpretation where the numerical data is interpreted to come up with patterns, trends and relations. This kind of a mixture of quantitative data and arguments based on the analysis makes the study more profound and dependable.

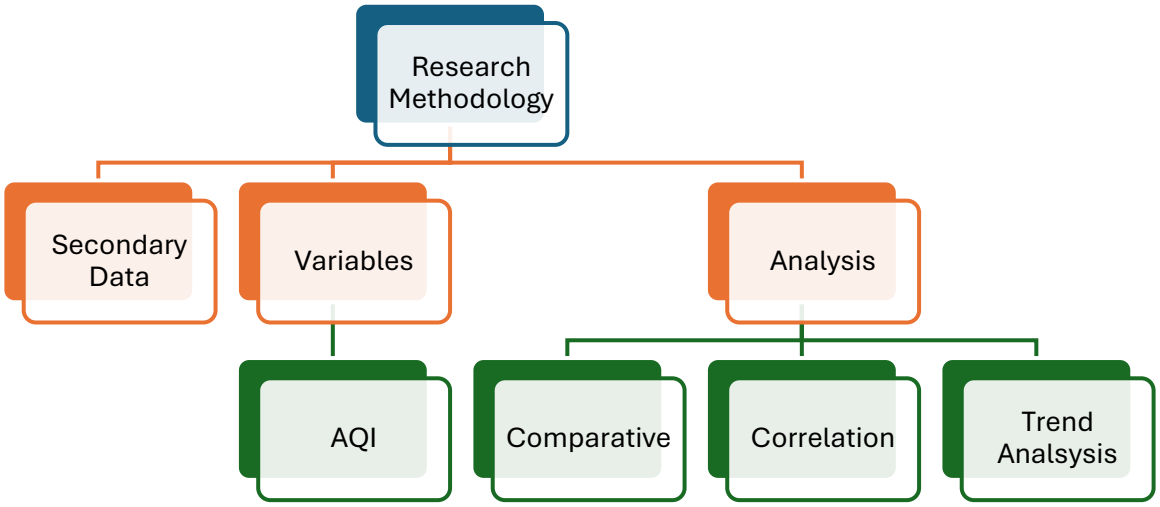

Figure 2: A systematic approach of entire research

It has been conducted in the form of a cross-sectional design and the attention has been paid to the latest available data (mostly 2024-2025). This will make the findings indicate the trend that is being followed in urbanisation and environmental condition. Meanwhile, on trend basis, there are some superficial observations provided in which one has an idea whether the cities are getting better or even level and even worse there are some ones getting worse with time. It is a deductive research, the professionals take assumptions about general assumptions, which are checked with the empirical data. An example in point is that it is mostly accepted that healthy living and health would be improved as people would have access to more services and infrastructure due to the quality of air. These assumptions are discussed in terms of the reality data of various cities. The second significant peculiarity of the approach to the study is that a tri-variable model is applied in accordance with which AQI, income, and livability are not discussed independently of each other. The given approach acknowledges the fact that the quality of life within urban environment is not a one dimensional phenomenon, which can be described with regards to only one aspect. Their relation is thus the subject matter of the research regarding the role of the environmental, economic and institutional factors.

3.2 Data Collection and Sampling

- The author conducts the paper entirely based on the secondary data that is collected in the authoritative and well-known and trusted sources. It is done through consistency, reliability and comparability across the cities with the help of secondary data especially when one is handling the international data. The sources of important data information include the international reports, organization databases, and governmental publications. The sources provide equal scales of AQI (especially the concentration of PM2.5) and per capita income (nominal and purchasing power parity) and livability rates. Through the available datasets, the study has avoided any issue of data inconsistencies and is more acceptable to the comparisons. Purposive sampling technique has been employed in the selection of the cities to be used. The choice of cities has not been arbitrary but on the contrary, cities have been chosen based on some criteria to be able to make an analysis which is meaningful. There are a total of nine metropolitan cities which have been included in the study and they are categorized into two groups:
- International cities representing developed and high-performing urban systems
- Indian cities representing rapidly growing but structurally constrained urban environments

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The selected cities include New York, London, Singapore, Dubai, Zurich, and Hong Kong as international examples, and Delhi, Mumbai, and Pune as Indian representatives.

The criteria for selection are as follows:

- Economic significance and global relevance
- Availability of reliable and recent data
- Variation in environmental conditions and income levels
- Representation of different governance and policy models
- Relevance to the study's objective of comparing developed and developing urban systems

Such sampling approach will have a diversity on the dataset and the study findings will have a high representation of city experiences. It also enables the balancing of the comparison of the cities with high income and well-organized governing systems and those that have environmental and infrastructural problems.

The data collected includes:

- PM2.5 concentration levels as a measure of air quality
- GDP per capita (nominal and PPP) as a measure of economic prosperity
- Livability index scores as a composite measure of quality of life

The data has been carefully compiled and standardized to ensure that comparisons across cities are meaningful and accurate.

3.3 Variables, Hypotheses, and Analytical Techniques

The work is structured in a manner that there is a group of definite variables which describe the analysis model. The variables are categorized under independent, dependent and contextual factors in order to have a clear understanding of the factors. The first one will be air quality (in the form of PM 2.5) and per capita income as independent ones. These are independent factors as they affect the overall standards of living in a city. Livability index is the dependent variable meaning the standard of the overall quality of life according to the variety of factors such as health facilities, infrastructure, stability and the environment. In addition to these there are also some contextual or mediating factors. These are quality of governance, policy interventions, amenities of urbanisation and delivery of services to the people. They cannot be directly determined, in such a way as AQI or income, but are significant aspects of the effects and the specifics of the intercity disparities.

Based on theoretical understanding and preliminary observation of data, the study is guided by the following hypotheses:

- Better air quality (lower PM2.5 levels) is associated with higher livability levels
- Higher per capita income contributes positively to improved livability
- Cities with strong and well-implemented policy interventions achieve better outcomes
- Indian metropolitan cities show relatively lower livability despite economic growth
- There exists a strong interrelationship between air quality, income, and livability

These types of hypotheses provide some kind of systematic direction to the study and help to make rational and systematic inferences of the data. The analysis is executed by the means of the combination of simple but efficient methods. The initial method is known as comparative analysis where the cities are matched in all the three variables to establish the differences and the similarities. This will help in the accomplishment of the international standards and the relative position of the Indian cities. Correlation analysis is also applied to test the relationship between variables using analytical method of correlation. Although there are no such high level tools of statistics such as regression analysis, data pattern is employed to determine definite directional relationships. Taking the living score as an example, low PM 2.5 cities are more likely to have a higher livability rate than other city high incomes, and the city has better infrastructure and services.

4. RESULTS AND DISCUSSION

4.1 Global AQI Standards and WHO Guidelines

Air Quality Index (AQI), is a standardised scale of communication of the level of air pollution in the world. In this paper the US EPA AQI scale is used that categorizes air quality into six diverse levels such as Good (0 50) and Hazardous (301 500). The primary emitted pollutant, which is monitored, is PM2.5 (fine particulate matter having less than 2.5 micrometres in diameter), the most hazardous pollutant due to its ability to penetrate deep into bloodstream and the lungs. In 2021, the World Health Organization also updated its Air Quality Guidelines and proposed that the annual mean of PM 2.5 should be 5 micrograms per cubic metre. It is a massive narrowing of the previous guideline of 10 micrograms per cubic metre. It is also interesting to observe that none of the nine cities that are discussed in this paper meets the current WHO recommendation, which is a symptom of the worldwide crisis of coping with air quality. In the world, IQAir 2024 World Air Quality Report found that only seven countries (Australia, the Bahamas, Barbados, Estonia, Grenada, Iceland and New Zealand) were able to comply with the WHO standard and 17 per cent of global cities were able to do it.

4.2 City-wise AQI Analysis

4.2.1 New York City

In 2024, the PM 2.5 of New York City was 7.1 to 7.5 micrograms per cubic metre, which translates to an US AQI of around 30 to 31 in a year (Good). It is an improvement over the 2019 number and has soared to approximately 11.0 micrograms per cubic metre in 2023, owing to Canadian wildfire smoke. The worst contamination origins are commuter traffic, heating of buildings through the combustion of oil, construction dust, and long-range smoke of wild fire transportation. The Clean Air Act, Local Law 97 building emission caps and Clean Trucks Program have enhanced the PM 2.5 levels in New York by 46 per cent since 2000.

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4.2.2 London

London had the lowest PM 2.5 of 7.2 micrograms per cubic metre (urban background) which is about an AQI rating of about 30 to 32 in the US (Good). The PM 2.5 steadily decreased since the 12.4 micrograms per cubic metre of 2009 decreased to 7.2 in 2024. The most effective intervention was the Ultra Low Emission Zone (ULEZ) which has been extended to London-wide in August 2023; it has cut roadside NO 2 by up to 27 per cent and car and van PM 2.5 by up to 31 per cent of the base year. The vehicles were also improving the compliance rates with 60.9 per cent in 2019 to 96.7 per cent in September 2024.

4.2.3 Singapore

According to an official NEA data on Singapore (2024) of 19 micrograms per cubic metre per year, Singapore has a PM2.5 score of 19 0.019 cubic metres in 2024, and this falls within the range of 65 or its Moderate AQI. It has an abrupt variation on air quality due to transboundary haze that occurs due to Indonesian peatland fires. Singapore Transboundary Haze pollution Act of 2014 provides extra-territorial punishment on the companies that cause haze and ASEAN agreement on Transboundary Haze pollution acts is a regionally oriented framework on cooperation. Despite these interventions, these interventions remain 3.8 times more than the WHO guideline.

4.2.4 Dubai

In 2024, the PM 2.5 of Dubai was 33.4 micrograms per cubic metre (IQAir data) which corresponds to a US AQI of about 97(upper Moderate). The desert dusts are natural and of major importance to the air quality of Dubai whereby PM10 is reported to be 60 to 80 micrograms per cubic metre. The anthropogenic sources are the vehicle emissions, the additional growth of the number of vehicles of the vehicle fleet, the construction of the current large-scale projects, and the industrial and aviation emissions. The UAE set a target of 47 per cent reduction in its emissions by 2035 in its Third Nationally Determined Contribution, and in its UAE National Air Quality Agenda 2031 and Dubai Clean Energy Strategy 2050 (targeting 75 per cent clean energy), the UAE had already intended to do this.

4.2.5 Zurich

Zurich is among the cleanest cities globally which can be characterised by a cross-city yearly PM2.5 of approximately 9.9 micrograms per cubic metre in 2024 and a US AQI of approximately 41 (Good). Benefits are long term due to Luftreinhaltepolitik (Clean Air Policy) since 1985 and Ordinance on Air Pollution Control (LRV/OPair) of Switzerland. They lead to low automobile emissions as the coverage of the public transport (over 500 transit trips per resident per year) is high. The IQAir 2024 report put their highest monitoring station at Zurich with 0.7 micrograms per cubic metre and the average in the city is 9 to 10 micrograms per cubic metre.

4.2.6 Hong Kong

The general station PM2.5 level in the air and the roadside PM2.5 level in 2024 in Hung Kong stood at 15.1 and 20.2 micrograms per cubic metre respectively (Clean Air Network Annual Review). Long-term On the long-term basis, the city saw a reduction in PM2.5 by 63 per cent since the year 2004 (with slight increases in 2023 and 2024). The Air Quality Health Index of Hong Kong, the value of vehicle emission slowly raising to the Euro VI counterparts, low-sulfur fuel norms, and regional collaboration with the Guangdong province pegged on the Pearl River Delta have been improved.

4.2.7 Pune

In the NCAP programme, the largest Maharashtra cities in terms of PM2.5 were topped by Pune with an annual estimate of 38 micrograms per cubic metre which is a proving improvement of 20.7 per cent over the base level of 47.9 micrograms per cubic metre in 2019. This is a similar index of the US AQI of about 107 (Unhealthy for Sensitive Groups). The source is mainly air pollution by vehicles in an expanding fleet, construction dust, industrial activities in Pimpri Chinchwad belt and open waste burning. This is a little less than the NAAQS of 40 micrograms per cubic metre in India.

4.2.8 Mumbai

This is 36.1 micrograms per cubic metre or 2024 (NCAP full year) PM 2.5 in Mumbai and is equivalent to the 102 (Unhealthy for Sensitive Groups) in the US AQI. According to the trend, it has been unpredictable: high levels in 2021-2023 of about 48 micrograms per cubic metre, and 2024 is already much better. The largest contributors are the construction dusts related to the mass development projects in the city, vehicle emissions in a high population city, shipping and port emissions and Diwali fireworks peaks.

4.2.9 Delhi

Delhi has the lowest capital formation in the world. IQAir (2024) reported 91.6 micrograms per cubic metre, but that is 104.7 micrograms per cubic metre in 37 stations in the CSE city (3.4 per cent in 37 stations in 2024). In the US, it would be equivalent to 175- 200 (Unhealthy). Compared to 2021 that has improved slightly over the last year due to the influence of the former pandemic, this PM 2.5 is worse by 2 years. Air pollution in the industry, the dust that is emitted during the construction in the area, solid fuel that is burnt in the home etc are contributing factors in a population health crisis. GRAP (Graded Response Action Plan) Stage IV has been declared.

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Table 1: PM2.5, AQI, and WHO Compliance

City	PM2.5 (ug/m3)	US AQI	WHO Compliant?	5-Year Trend
Zurich	~9.9	~41 (Good)	No (2x)	Stable/improving
New York	7.1-7.5	~30-31 (Good)	No (1.5x)	Improving
London	7.2	~30-32 (Good)	No (1.44x)	Improving
Singapore	19	~65 (Moderate)	No (3.8x)	Fluctuating
Hong Kong	~15	~56-58 (Moderate)	No (3x)	Improving (long-term)
Dubai	33.4	~97 (Moderate)	No (6.7x)	Mixed/fluctuating
Pune	38	~107 (USG)	No (7.6x)	Improving (-21%)
Mumbai	36.1	~102 (USG)	No (7.2x)	Mixed
Delhi	91.6-104.7	~175-200 (Unhealthy)	No (18-21x)	Worsening

Sources: IQAir World Air Quality Report 2024; UK Government PM2.5 Statistics; Singapore NEA; CSE India; NCAP India Reports

4.3 Key Observations and Insights

A number of significant findings have been obtained during the analysis of the air quality. To begin with, the WHO norm of 5 micrograms per cubic metre of PM2.5 per year in all of the cities considered in the research is not met, which proves that the air quality issue is international. Second, there is a high difference (about 14 times) between the cleanest and the most contaminated cities (New York at approximately 7 micrograms per cubic metre and Delhi at approximately 92 to 105 micrograms per cubic metre respectively) a health outcome difference. Third, policy interventions work: ULEZ in London has already produced an immediate change and improvement at NCAP Delhi has shown that in a resource-constrained setting, well developed programmes can result in change. Fourth, the worsening of the situation in Delhi since 2022 can be used as an example of the ineffectiveness of the concept of the emergency response strategies (GRAP) which does not presuppose any structural measures related to reducing the degree of vehicular emissions, industrial processes, and scale burning of crop residues.

4.4 Per Capita Income and Economic Indicators

4.4.1 GDP Per Capita Comparison

GDP per capita is the simple index of economic prosperity. The difference between the nine cities is unbelievable, because Zurich is approximately $107,000 (nominal, national level), Pune is approximately $3,300 to 5,100. This is a 35 fold income difference, which happen to be one of the highest inter-city income difference in any comparative analysis of any global Metros.

Table 2: Comparison on Income Level

City	GDP/Capita Nominal (USD)	GDP/Capita PPP (USD)	Median Income (USD/yr)
Zurich	103,670-107,135	82,026	~100,800
Singapore	94,912	132,570	~100,300 (HH)
New York	~149,000 (city)	~80,300 (US)	81,228 (med HH)
London	~87,800	~65,000 (est.)	~49,900
Hong Kong	54,082	66,171	~46,100 (HH)
Dubai	44,600-53,916	68,585-96,846	~63,600 (avg)
Mumbai	~7,884 (city)	~11,100 (India)	~5,280 (avg)
Delhi	~5,543-6,146	~11,100 (India)	~5,270 (avg)
Pune	~3,336-5,112	~11,100 (India)	~3,336-5,112

Sources: CEIC; Trading Economics; World Bank; US Census Bureau; ONS UK; Singapore DoS; Statista

4.4.2 Average Income and Cost of Living

The comparisons of the nominal incomes alone distort the reality of the standards of living. Numbeo Cost of Living Index (2025, NYC = 100) is extremely differentiated: The city of Zurich (price of 103.8) is the most expensive city, whereas urban areas in India (Delhi = 22.2, Pune = 22.8, Mumbai = 25.6) cost a quarter of what the city does in New York. It is due to this price range that Local Purchasing Power Index of Pune is 151.1 which is significantly higher than the mark of 100 of New York that is considered to be the high cost base of IT and automotive professionals being paid fairly high salaries in a low-cost environment.

Table 3: Various Indices of Different cities

City	CoL Index	Rent Index	Local Purchasing Power
Zurich	103.8	59.3	158.3
New York	100.0	100.0	100.0
Singapore	79.1	67.0	93.8

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London	77.9	66.1	101.8
Hong Kong	73.6	55.7	101.0
Dubai	58.0	51.2	125.5
Mumbai	25.6	18.1	73.3
Pune	22.8	6.4	151.1
Delhi	22.2	7.2	92.7

Source: Numbeo Cost of Living Index 2025 (NYC = 100)

4.4.3 Key Findings

The economic analysis provides certain important outcomes. Zurich and Singapore are the richest cities in terms of per capita, respectively (Zurich being the richest nominally and Singapore being the richest on PPP). The city of New York prides itself of the greatest GDP concentration on the city level but this is distorted by the great inequality level. The purchasing power of the realities is extremely high in Dubai since the salary tax is zero, yet the costs are middle-income. The Indian cities are trailing behind, but are growing three to five times faster, which means that there would be a potential convergence of the future. Pune has an impressive purchasing power index of 151.1 which itself is the pointer of the new economic value propositions of the new cities in India Tier 1.5.

4.5 Livability Index - Quality of Life Assessment

4.5.1 EIU Global Liveability Index Analysis

The Global Liveability Index is a list of 173 cities with rankings by the Economist Intelligence Unit applying 30 indicators that are weighted by five dimensions, including Stability (25 per cent), Culture and Environment (25 per cent), Healthcare (20 per cent), Infrastructure (20 per cent) and Education (10 per cent). In the 2024 version the dramatic 3 level formation in the nine research cities can be seen.

Table 4: EIU Global Liveability Index

City	Rank	Score	Stability	Healthcare	Culture	Education	Infra.
Zurich	3	97.1	95.0	100.0	96.3	100.0	96.4
Singapore	26	92.9	95.0	100.0	76.6	100.0	100.0
Hong Kong	50	87.0	85.0	87.5	58.3	91.7	96.4
London	45	82.0	75.0	75.0	82.6	91.7	89.3
Dubai	~78	81.7	90.0	66.7	52.5	58.3	92.9
New York	70	76.0	60.0	58.3	76.4	91.7	89.3
Pune	~137	~59	~55	~45	~35	~55	~50
Mumbai	141	60.2	60.0	41.7	33.3	58.3	51.8
Delhi	141	60.2	50.0	41.7	35.4	66.7	58.9

Source: EIU Global Liveability Index 2024

Zurich is nearly representing the maximum score of 97.1 of 100 in all dimensions with only two areas (healthcare and education) scoring the ideal mark in the index. Singapore scores 100 in the healthcare since it ranks best in Asia. In 2024, Dubai has topped out of the 80-point benchmark with enormous spending on health and education. The Indian cities are grouped at the bottom having a score of about 58 to 60, never good in healthcare (41.7), culture and environment (33 to 35) and infrastructure (50 to 59).

4.5.2 Comparative Table and Tier Analysis

Table 5: Comparative Table and Tier Analysis

Dimension	Best	2nd	3rd	Worst
Overall Livability	Zurich (3rd)	Singapore (26th)	London (45th)	Mumbai/Delhi (141st)
Safety	Dubai (16.2)	Hong Kong (21.6)	Zurich (~22)	Delhi (59.4)
Healthcare	Singapore (70.6)	Zurich (70.0)	London (70.1)	New York (62.7)
Green Space	Zurich (~66m2)	London (~32m2)	Singapore (~30m2)	Mumbai (1.2m2)
Public Transit	Singapore (1st)	Hong Kong (2nd)	Zurich (8th)	Pune (undeveloped)
Housing Afford.	Dubai (~7x)	Pune (8.7x)	Delhi (10.1x)	Mumbai (38.5x)

Sources: EIU 2024; Mercer 2024; Numbeo 2024; Oliver Wyman Forum 2024

4.6 Correlation Analysis - AQI, Income, and Liveability Nexus

4.6.1 How Air Quality Correlates with Livability Scores

The EIU liveability scores of the nine cities have negative correlation with the PM 2.5 concentrations. Examples of such cities can be found in the high-livability and low-pollution category, including Zurich (PM2.5: 9.9, EIU: 97.1), New York (PM2.5: 7.5, EIU: 76.0) and London (PM2.5: 7.2, EIU: 82.0).

The points of the high pollution and low livability spectrum are the ones of Delhi (PM2.5: 91.6 to 105) and Mumbai (PM2.5: 36.1, EIU: 60.2). The Culture and Environment sub-score is directly affected by the air quality as 25 per cent of the EIU weighting is attributed to this. The Indian cities are rated between 33-35 on this dimension that is approximately half the air pollution levels of the international counterparts.

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4.6.2 Income-Liveability Relationship

There is an increased liveability that is observed to be correlated with the increased per capita income though not in a linear manner. The high GDP per capita of New York of $149,000 is abnormally high to be matched by a correspondingly low EIU score (70^{th}) dragged by the stability and healthcare score. Conversely, Dubai is rated at 81.7 since its GDP per capita ($44600-54000), despite being lower than that of London or Singapore, because of deliberate investment in infrastructure and safety. The Indian cities demonstrate that it is not worth having only high economic growth: the 7 per cent GDP growth did not translate into the similar growth of liveability in India, which means that the institutional quality, governance, and investment in infrastructure are mediators.

4.6.3 The Three-Variable Interplay

When considering the three variables, it can be seen that there is a trend. Cities that are clean, possess good income and well-established institutionalized systems (Zurich, Singapore) are the most liveable cities. Moderate liveability at a certain cost is also gained in income cities where there is an environmental or social pressure (New York, Hong Kong). The cities with middle-income groups that have strategic investment focus (Dubai) can be hitting more than its revenues. and cities with high economic growth rates, but with severe environmental and institutional environments (Delhi, Mumbai), find it hard to carry over economic dynamism into the quality of life.

4.6.4 Key Patterns and Outliers

The most salient outlier is that of Delhi, which boasts the best metro network (394 km) in India, a number of world-famous organizations (AIIMS, IIT Delhi) and the largest amount of green space per capita (21.5 square metres) of all the nine cities, but has the lowest livability due to the fact that it has very high air pollution (18 to 21 times the WHO threshold) and the crime index (59.4). Even within the Indian setting, Pune is a good outlier: the purchasing power index of 151.1 is larger than that of New York, purchasing power of 8.7 times income is the largest among the cities included in the study, and the decrease of PM2.5 by 20.7 per cent is considerable. The safety-livability decoupling in Dubai is impressive: the index of crime (16.2) is the lowest, which results in the EIU stability index standing at 90.0 despite the lack of cultural depth (52.5).

4.7 Best Practices from International Cities

4.7.1 Air Quality Management

London: Ultra Low Emission Zone (ULEZ)

One of the most successful air quality interventions in cities around the world, perhaps, is the ULEZ, which has been extended to the city-wide in London in August 2023. The cars that fail to meet the Euro 4/6 standards (non-compliant) pay 12.50 pounds per day. As of September, 2024, the vehicle compliance rate is 96.7 per cent more as compared to 60.9 per cent in September of 2024. The long term effects include a 27 per cent city-wide reduction in NO2 relative to no ULEZ, 29 per cent reduction in PM 2.5 exhaust emissions, and 31 per cent reduction in PM 2.5 car and van sources emissions. The independent research of the University of Bath had saved the government 37 million pounds of money spent on health in a single year by reducing sick leave by 18.5 per cent and respiratory health issues by 10.2 per cent due to ULEZ. The University of Birmingham conducted a causal inference study indicating that the percentage of NO2 decrease at the roadside points was 19.6 per cent during half a year of the initial ULEZ phase.

Singapore: Vehicle Quota System (COE)

In Singapore, through the Certificate of Entitlement (COE) system, there is a general restriction of the total number of vehicles in total production and ownership in Singapore where bidding of a certificate is made before a potential car owner can purchase. In the case of small cars, the COE sells more than SGD 100,000 frequently. This system coupled with Electronic Road Pricing system and state of the art MRT network makes sure that the average speed on the roads is 20 to 30 kilometres per hour compared to 15 kilometres per hour in other cities with equal stature in Asia. During the 2026-fiscal year, the COE system was generating SGD 8.66 billion of revenue to help in the development of the public transport. Singapore is considering banning petrol and diesel cars by 2040.

New York: Congestion Pricing

The United States implemented the first congestion pricing programme based on cordon on January 5, 2025 in NYC, where passengers cars entering the Manhattan area of the Central Business District pay an entry fee of 9 per day. The first performance was 1 year better than expected: the volume of traffic entering the zone fell by 27 million vehicles (11 per cent reduction), the average CBD speed increased 15 per cent (between 8.2 and 9.7 mph), PM 2.5 fell 22 per cent (Cornell University study), road carnage fell 40 per cent, and the net revenue grew to 518 million dollars. The programme made available in MTA funds of $15 billion on the enhancement of transit and subway journey within the zone increased by 9 per cent.

Zurich: Transit-First Model

Zurich strategy which was determined after a citizens vote in 1978 to use CHF 200 million on transit priority rather than a subway demonstrates how public transport superiority can reduce vehicle dependency. ZVV connects 37 operators to a different single integrated tariff where the trams are performed at the large stations with an interval of 45 seconds. Every resident falls within 0.4 kilometres of transit. Average signal throughput is below 4 seconds. The number of people using it has grown by 35 per cent per person since 1990 and over five hundred transit trips per resident per year suggests that the transit or buses have more people using them than driving.

Dubai: Green Economy Initiatives

The Dubai environmental enhancement vision is not the control of vehicles, but a transformation of energy due to its geographical position and infrastructure of automobiles. The Mohammed bin Rhashid Solar Park can reach 5,000 MW in the year 2030 and the Third NDC of the UAE expects that 47 per cent of the emission would be reduced by the year 2035. National Air Quality Agenda 2031 gives a monitoring plan and implementation. Dubai

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appeared in the 4 th place in the IMD Smart city Index 2025 where AI-based traffic management would reduce congestion by 25 per cent.

4.8 Economic Development Models

The Economic Development Board of Singapore is an organization that handles planning the FDI, industrial policy and enterprise development. The EDB, also invested its Fixed assets of SGD 13.5 billion in 2024, and had undertaken its 18,700 jobs or more with the majority earning above SGD 5000 per month (66 per cent). The Dubai D33 Agenda is projected to grow the GDP to 40 and beyond by a Free zone of 100 per cent foreign ownership, inflow of talents under the Golden Visa, flow of talents under the system of 25 and more trade agreements as CEPA. It is also estimated that about 77.5 per cent of the UAE GDP is made up of the non-oil sector. Swiss AI investment Zurich The innovation setting is centred on ETH Zurich (top 10 globally) and has since 1996 spawned 640-plus spin-offs, 72 per cent Swiss AI investment is centred on Zurich. In 15 years, Switzerland has taken the leading position in the global ranking of WIPO Global Innovation Index.

4. 9Urban Planning and Liveability

The population of Singapore is approximately 80 per cent who reside in the Housing and Development Board that has schools, clinics, markets and transportation in the neighbourhood of the homes. The Green Plan 2030 of the city aims to cover all the households within 10-minute neighborhood of the parks as well as 47 per cent of the city-state comes under the green cover. Evidence-based planning of cities could be done with a full 3D digital twin, Virtual Singapore. The green infrastructure strategy of London has made the contribution of biodiversity in new developments to be obligatory and also estimated the natural capital of TfL to be approximately 328 million pounds. The Healthy Streets Approach comprises of green corridors, pedestrian infrastructures and cycling infrastructures.

4.10 Summary Table of Key International Interventions

Table 6: Summary Table of Key International Interventions

City	Key Intervention	Primary Metric	Outcome
London	ULEZ (city-wide 2023)	PM2.5, NO2	NO2 -27%; PM2.5 exhaust -29%
Singapore	COE + ERP + MRT	Vehicle density, speeds	SGD 8.66B revenue; 20-30 kph speeds
New York	Congestion Pricing	Traffic, PM2.5	$518M revenue; PM2.5 -22%; deaths -40%
Zurich	ZVV transit priority	Ridership, modal shift	500 trips/resident/yr; <4s signal delay
Dubai	D33 + Smart City	GDP diversification	Non-oil 77.5% GDP; IMD Smart City #4
Hong Kong	Stock Connect + AQHI	Capital flows, AQ	#1 economic freedom; PM2.5 -63% since 2004

Sources: GLA London; Singapore EDB; NY Governor's Office; Metro Magazine; Dubai DOF; HK EPD

4.11 Current Indian City Initiatives and Progress

4.11.1 Air Quality Programmes

India possesses emergency air quality management system and structural air quality management system. GRAP is a four-step action plan of emergency response activated when the AQI hits certain specified levels, such that Stage IV (AQI above 450) would trigger school closures, building and vehicle restrictions etc. GRAP was revised in September 2024 and Stage IV was announced in November and December 2024 and 2025. In 2019 a new scheme the National Clean Air Programme (NCAP) was launched which was projected to cut PM2.5 by 40 per cent in 130 non-attainment cities by 2026. It has paid 11, 211 crore rupees (in equivalents of 1.3 billion dollars). The third city listed in the NCAP list of polluting cities is Delhi city and the concentration of PM10 pollutant is 211 micrograms per cubic metre. Among the largest shifts in agricultural wastes burning has been that centre announced to Parliament that stubble burning is reduced by 90 per cent in Punjab and Haryana in comparison to the harvest season 2022. To convert the crop residue, 2.6 lakh plus machineries have been distributed and more than 800 villages already possess the balancing machines to prepare biogas and bio-fertilizer. The car ratios that have been used odd and even in the city in Delhi have actually yielded different results and peer reviewed articles have reported the values of up to 74 per cent cutback in PM an hour which actually occurred at the same period of time when the experiment was carried out and considerably high mean change per day as a consequence of the non vehicle origins. Recent reports indicate that 25 cities out of 130 cities in NCAP have reported reduction in PM10 levels compared to the 2017-2018 baseline.

4.11.2 Economic Development

In 2015 Smart Cities Mission was introduced and had the capacity to serve 100 cities with rupees 1.64 lakh crores and 8,067 projects. The project was cancelled on 31 March 2025, the final day of the project and 18 out of 100 cities were completed. Pune was among these 18 cities. A share of 6 per cent below target PPP in January 2024 and poor planning and lack of greenfield projects caused the unsatisfactory results, according to a Parliamentary Standing Committee. This is in contrast with Pune having the highest growing large metro in India with 1.05 lakh crore rupees (more than doubled in 2019) of Indian IT exports, 350 plus Global Capability Centre exports (more than doubled in 2019) a district

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economy of 5.3 lakh crore rupees. Mumbai been the financial capital of India, the 701 km (all underground) Mumbai Nagpur Samruddhi Mahamarg has been active since 2025 and the Metro line 3 (33.5 km all underground) was inaugurated in October 2025.

4.11.3 Urban Infrastructure

The most successful environmental development in India is the development of Metro rail. In March 2026, another extension executed as Phase 4 of Delhi Metro added two new corridors to extend the networks to 394 km and 289 stations transforming the Pink Line to the first fully functioning ring metro in India. Making the travel between Cuffe Parade and the airport 45 minutes, financed by JICA loans of about 2.4 billion US dollars, Mumbai Metro Line 3 transformed the travel between Cuffe Parade and the airport to ultra comfort. The Metropolitan Pune Metro phase 2 (48.86km) was approved in October 2024, and will be operational in May 2026. PMAY-Urban has approved 125.15 lakh houses of which 97.3 lakh houses are already done. In September 2024, PMAY-Urban 2.0 was introduced which intends to provide 1 crore of more housing units with central grant up to 2.50 lakh crore rupees. The total number of statutory towns will be around 4, 900 to supply the water and sewerage service to all the households in the city by AMRUT 2.0 and its total spending will be 2,99,000 crore rupees.

4.11.4 Assessment of Progress and Gaps

The urbanisation in India is posing an alarming threat to the development of this nation despite the efforts that are being put in place towards effecting positive changes. World Bank estimates that Indian urban infrastructure will need 840 billion US dollars and 2.4 trillion US dollars in 2036 and 2050 respectively. India has invested 0.5 per cent of GDP in urban infrastructure which is very low in the world. The revenue that is collected by the urban infrastructure by the private sector is only 5 per cent. The issue of coordination is even further complicated by the fact of fragmentation of governance in that there are numerous overlapping organizations (in Mumbai alone: BMC, MMRDA, MPCB, MMRCL and state housing boards). The initial institutional problem as suggested by the Sindhanai Think Tank is absence of executive authority and financial independence of the directly elected mayors in the Indian cities.

4.12 The Way Ahead - Recommendations for Indian Cities

4.12.1 Near-Term Actions (0–2 Years)

The following interventions offer high impact at relatively low cost and can be implemented within existing institutional frameworks:

- Transit Signal Priority: On 20 to 30 high frequency city bus corridors Delhi, Mumbai and Pune, implement signal priority software within the footsteps of Zurich where even passenger transit times had been reduced to less than 4 seconds. Prices: quite low (induction loops and software). Advantage: 1525 per cent of the trustworthiness of bus trips.
- Integrated Common Mobility Card: The use of National Common Mobility Card should be extended to every form of transport like auto-rickshaws, city buses, suburban rail and metro in the three cities. This can be said because the modern system of UPI and FASTag that are in use in India could be implemented within a lesser time period compared to the time spent by London and Zurich.
- BS- VI Scrappage Linked Emission Zone Pilots: Renew ongoing Delhi High Pollution Control programmes to ANPR camera-based geofenced emission areas. Begin with 2-3 arteries, which were most congested. The funds that will be used to fund transit improvement must be seen in public view in an attempt to generate revenue acceptability.
- The citizens are expected to have a channel to make reports on the One Service model applied in Singapore within the framework of the Smart Cities Mission with the help of an agreed citizen reporting application on the current ICCC infrastructure. Supply dealt with the response to air quality, garbage, and road maintenance and water supply.
- Urban Greening Factor Mandate: Include Urban Greening Factor of 0.3 (as in London) in building bylaws of all the cities with over 1 million inhabitants. It is a cheap alteration in regulation.

4.12.2 Medium-Term Reforms (2–5 Years)

Medium-term reforms require legislative action, institutional restructuring, and capital investment:

- FASTag- Based Congestion Pricing Pilot: Pilot cordon-based congestion pricing on 2 to 3 common urban congested roads in Delhi and Mumbai with existing FASTag webbing. The New York experience shows that the first year of revenue was 518 million US dollars and a 22 per cent decrease in PM2.5 and 40 per cent decrease in the number of traffic deaths.
- UMTA Empowerment: Empower Unified Metropolitan Transport Authorities through legislation to organize their operations, and have budgetary control, which is present in some states, but not everywhere. This is a replica of ZVV model of one authority dominating all the transit operators in Zurich.
- Digital Twin Platform: As Virtual Singapore and E-Planner have done, expand the existing ICCCs with 3D digital twin functionality into the 20 largest cities. Traffic, air quality, water, sewage, and land use open data APIs in all local bodies of urban areas is important.
- State-Level EDB Equivalents (Economic Development Boards): Establish state-level integrated investment promotion agencies, i.e. EDB-like, which have the mandate to attract FDI, promote R&D and workforce development in one body.
- Mixed-Use Public Housing Mandate: Mandate all new PMAY developments of greater than 500 units to incorporate schools, health clinics, markets, and transit access within 500 metres, a model of HDB integration in Singapore.

4.12.3 Long-Term Vision (5–15 Years)

The long-term vision requires constitutional and institutional reform, sustained capital investment, and generational infrastructure building:

- Full Cordon-Based Low/Zero Emission Zones: Implement huge emission zones in Delhi, Mumbai, Pune, Bengaluru, and Chennai on the London ULEZ model, but with Indian

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vehicle composition (high heavy, two-wheeler/ auto-rickshaw), and allowance to low-income earners.
- Governance Reform: Direct election of mayors and executive powers with independent fiscal powers and 5-year terms by full implementation of the 74 th Constitutional Amendment. This is the most crucial structural reform that has been found by various analyses.
- Innovation Districts: Establish Singapore-style Special Economic Zone or Zurich Innovation Park-style innovation districts in 5 to 8 cities including in-built R&D centers, university connections and startup communities. The initial prototype is encouraging in GIFT City in Gujarat. Findings from the short coming in GIFT City model to be corrected in new models.
- HDB-Style Transit-Oriented Affordable Housing (Housing & Development Board, Singapore): Prepare a holistic programme of mixed use, transit based affordable housing, compulsory, renewal corpus, ethnic and income mixing, and renewal cycles on a 15 to 20 year basis.

4.12.4 City-Specific Recommendations

Pune

The opportunity is created by the fact that Pune is the fastest-growing Tier 1.5 city in India, with IT exports amounting to 1.05 lakh crore rupees and 360-plus GCCs, which leads to the urgency. Recommendations should be given priority to include: rapid completion of Metro Phase 2 by 2030; the inclusion of the 83-km Ring road to offload the central city; setting aside a portion of the land in all new developments as green space (currently, it is less than 1 per cent of the city area, compared to the global average of 20 to 25 per cent); the emphases of the implementation of the NCAP to ensure that the remaining gap is bridged to comply with the 40 micrograms per cubic metre NAA. Development of innovation district between Talegaon and Lonavala towns of Pune district, to be called Green Pune district.

Mumbai

The high density of extreme housing unaffordability (38.5 times income), the abjectly small amount of green space (1.2 square metres per capita), and the sheer scale of continued construction of infrastructure places Mumbai in distinctive difficulties. Recommendations with priority should focus on: accelerating the remaining 8 lines of the MMR Master Plan (319 km in total); using the Coastal Road Garden project as a prototype in developing urban green spaces; creation of a coordination agency between MMRDA and BMC-MPCB to plan infrastructure; congestion pricing in the Eastern Expressway and Western Express Highway lanes; and the creation of a Mumbai Climate Resilience Fund because the World Bank estimates that the city is losing 4 billion US dollars annually in urban flooding. Development of innovation district between Panvel and Lonavala town of Raigad and Pune district respectively.

Delhi

The dual nature of Delhi as the political capital of India with metro-infrastructure that is considered world's-best and most polluted city in the world requires a radically different solution to the issue than a gradual one. Recommendations: speed up Metro Phase 4 and Phase 5 (18 new corridors) to serve outer Delhi-NCR locations; enforce a permanent low emission zone in the Lutyens Delhi core area and the core Connaught Place with ANPR to monitor air pollution; increase biomas pellet requirements to an elimination of remaining stubble burning; create a Delhi Clean Air Fund with revenue on congestion pricing; revamp GRAP as an emergency response to a permanent air quality management system; and create an NCR wide governing body with statutory authority over air quality, transport

4.12.5 Implementation Framework and Challenges

Three structural constraints need to be taken care of to achieve successful implementation. First, funding: according to the estimates of the World Bank, India requires $55 billion a year to invest in urban infrastructure (1.2 per cent of GDP), but the current level of investment is around 0.5 per cent. The program that was announced in February 2026 (4 lakh crore rupees in five years) as the Urban Challenge Fund is a step in the right direction but not enough compared to the size of the need. The municipal bond markets should be strengthened and the PPP frameworks expanded. Second, governance: the dispersion of power among various entities should be eliminated by the unified authorities in UMTA manner and entities with actual budget control. Third, capacity: Smaller cities and urban local bodies do not have planning staff, technical expertise, and vendor ecosystems. It needs national urban capacity building which could be based on the SkillsFuture credits on the case of Singapore.

5. CONCLUSION

5.1 Summary of Findings

A comparative analysis of nine major world cities on three dimensions namely, air quality, per capita income, and livability, shows the magnitude of the problem that is plaguing Indian metro cities and also the channels through which convergence can be achieved. The key findings are as follows:
- Air quality: There is a 14 times difference between the cleanest (New York, London with around 7 micrograms per cubic metre PM2.5) and the most polluted (Delhi with 92 to 105 micrograms per cubic metre) cities. None of the cities complies with the WHO suggested 5 micrograms per cubic metre although international cities are within 1.5 to 2 times the norm whereas Indian cities surpass it 7 to 21 times.
- Income: The difference in the nominal GDP per capita between Zurich (1,07,000 USD) and Pune (3,000-5,000 USD) is so substantial (35-fold) that the gap is meaningfully reduced upon purchasing power adjustment. The Indian cities are expanding 3-5 times compared to others in the developed market and the purchasing power index of Pune is 151 and higher than the New York index on the same.
- Livability: The EIU scores range between 97.1 (Zurich) to around 58 to 60 (Indian cities) with a 37-point difference between the two being fuelled by lack of healthcare, infrastructure, cultural environment, and lack of stability. Cities in India are at the lowest position in the world in terms of rankings.
- Correlation: Livability is associated with clean air, high income and strong institutions, and these were mediated by

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the quality of governance and the specific investment. Delhi demonstrates that it is possible to have world-class infrastructure (metro, institutions) and at the same time, a horrific failure of livability (air pollution, safety).

- Best practices: The ULEZ in London, the congestion pricing model in New York, the integrated planning model in Singapore, and the transit-first model in Zurich have proved and transferable models, which can be adapted to suit the circumstances in India with its unique vehicle mix, governance systems, and available resources.
- Indian progress: There are real accomplishments, such as 90 per cent stubble burning reduction in Delhi, 20.7 per cent PM2.5 reduction in Pune, 394 km Metro expansion in Delhi, completion of Mumbai Metro Line 3, and the supply of 97.3 lakh houses under PMAY.

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