Smart Cities Index
A tool for Evaluating Cities

ISB | Punj Lloyd Institute of Infrastructure Management

SHAKTI SUSTAINABLE ENERGY FOUNDATION

PAN PACIFIC

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Foreword

Hemant Kanoria
Chairman & Managing Director
Srei Infrastructure Finance Ltd

The central government's objective of developing 100 smart cities and 500 Atal Mission for Rejuvenation and Urban Transformation (AMRUT) cities over five years is a laudable commitment towards sustainable and inclusive urbanization. The Smart Cities Mission, in particular, has been widely publicized and has elicited much interest for its innovative national competition for selection of the cities. In the first two phases of this competition, a total of 60 cities have been identified to be upgraded to Smart Cities.

The agreed definition of a smart sustainable city is one which makes innovative use of information and communication technologies (ICTs) and other methods to improve the quality of life, efficiency of operations and services, while ensuring that it meets the needs of the present and future generations with respect to economic, social and environmental aspects. Quite naturally these cities will emerge as hubs of economic activity and will attract people from varied backgrounds.

While deciding on which smart city one would like to migrate or relocate to, any potential new resident would certainly like to have some reference material with reliable information in order to get an idea about the amenities and services that each city has on offer. In this context, I am very happy that the Indian School of Business has developed a "Smart Cities Index" that ranks these cities on a number of functional parameters. This index would certainly be a very useful tool in making informed choices.

The USP for this index is that it is not a blind copy of other indices used in developed countries and has been customised taking into consideration the emerging economy background of India.

I hope that this index will be used to carry out an annual rating of the smart cities so that the city authorities can continuously evaluate their performances vis-à-vis their peers and keep working towards improving their cities. I am confident that the Indian School of Business will be able to carry out this exercise every year in a neutral manner.

I wish the Indian School of Business the very best in carrying this forward.

Table of Contents

Acknowledgement i

Foreword iii

Table of Contents v

List of Acronyms vi

Section A:

Developing the Framework: Need, Ranking Methodology & Results

1 Background 1

2 Need for an Index 2

3 Potential Benefits of a Smart Cities Index 3

4 Approach Adopted 5

5 Results 13

5.1 Smart Cities Index Ranking 13

5.2 Living Index Ranking 14

5.3 Economy Index Ranking 15

5.4 Governance Index Ranking 16

5.5 People Index Ranking 17

5.6 Environment Index Ranking 18

5.7 Mobility Index Ranking 19

6 Benchmarking 20

7 Next Steps 20

Annexes

Annexure 1: List of Participants in workshops 23

Annexure 2: List of Characteristics, Factors, Indicators, computation metric & sources of indicators 24

Annexure 3: List of Alternate Methodologies Considered 28

Annexure 4: Questionnaire Used for User Satisfaction Survey 29

Annexure 5: User Satisfaction Survey Methodology 30

Annexure 6: Data Points and their Sources 34

Section B:

City Profiles 39

List of Acronyms

AMRUT	Atal Mission For Rejuvenation And Urban Transformation
CEPT	Centre for Environment Planning Technology University
GDP	Gross Domestic Product
GOI	Government of India
ICT	Information and Communication Technology
ICRA	ICRA Limited
ISB	Indian School of Business
MDRA	Marketing & Development Research Associates
MC	Municipal Corporation
NMT	Non Motorised Transport
OECD	Organisation for Economic Co-operation and Development
OG	Out-Growth
PT	Public Transport
UA	Urban Agglomeration

Section A:
Developing the Framework:
Need, Ranking Methodology
& Results

1 Background

India is urbanizing rapidly. During 1951 – 2011, a period of 60 years, India's urban population went up from just 62.4 million to 377.1 million, an increase of 314.7 million. This is an over 5 fold increase. In fact, during the decade of 2001-2011 alone India`s urban population went up by 97 million, representing over 30% of the increase that took place during the 1951-2011 period. In the last 60 years, the global population went up from about 750 million to nearly 4 billion, an increase of about 4.3 times. This shows that India has been urbanizing faster than the rest of the World. Further, only about 31% of India's population currently lives in its urban areas. Globally the share is over 50% and in most developed countries, this share exceeds 80%. This implies that urbanization will continue to take place over the next several decades as India is still short of the level at which urbanization tends to stabilize. In fact, it is projected that India's urban population will reach about 600 million by 2031.

This increase has had an impact on the number of cities having more than a million people each. The number of million plus cities has gone up from 35 to 53 over the last decade. It is projected to reach 87 by 2031[1].

Urbanization is also the key to India's economic growth. Urban India's contribution to GDP is currently over 60% even though its share of the total population is only about 31%. This share is expected to increase to 75% by 2030.

Further, India is blessed with a "demographic dividend" with its working age population being significantly higher that its non-working age population. This gives it the opportunity to increase income levels rapidly and secure faster growth. However, this dividend lasts only for a limited period. As the population ages, the dividend declines. During this period it is imperative that the country creates more employment opportunities to ensure that the higher working age population has jobs and that the lack of jobs does not push them towards anti-social activities. Urban areas become even more important in such a scenario as they are the key magnets for jobs. It is for this reason that cities are referred to as our "engines of economic growth" and ensuring that they function efficiently is critical to our economic development and well-being.

For cities to become effective engines of economic growth, they need to improve the quality of basic services.

Table 1 shows the benchmark standards for some services, against the actual situation in Indian cities. This demonstrates that there are large gaps in the current service levels that need to be bridged even to provide adequately for the current urban population.

Given the projections of a large increase in our urban population over the next few decades, and the need to provide for them as well, the task of managing our cities well seems daunting. Large investments in urban infrastructure, therefore, have to occupy center stage in the national development effort during the decades to come.

[1]Report on Indian Urban Infrastructure and Services: The High Powered Expert Committee (HPEC) for Estimating the Investment Requirements for Urban Infrastructure Services

Table 1: Benchmark Vs Actual for various urban services

Service	Benchmark	Average in Indian cities
Water Supply (liters per capita per day)	135	105
Solid Waste collected (% collected)	100	72
Sewerage treated (%)	100	30

Source: Benchmark - Handbook of service level Benchmarking,
Ministry of Urban Development, GOI
Average in Indian Cities: Calculated on the basis of data collected

Estimates of the investments required over the next 20 years are of around Rs. 39 lakhs crores. This means a requirement of nearly Rs. 2 lakh crores during each of the next 20 years. Clearly, the public budget alone cannot support the level of investments required and resources will have to be found from other sources. Cities have to plan smartly to be able to meet the requirements of their people with limited resources. It means having to plan the investments wisely and with sound information on what a city needs. Reliable data and sound analytical tools will be important for a city to develop its priorities correctly. It means having to do more with less.

It is in this context that the Government of India has decided to develop 100 "Smart Cities" in the country during 2015-2019. Sustainability and the efficient use of resources such as energy will be central to a Smart City.

2 Need for an Index

As the smart cities and other urban development initiatives roll out, it will be essential to monitor progress, not only across time but also across cities to assess comparative performance. This will need a metric that would enable cities to:

1. Be compared against one another for a variety of purposes– so that healthy competition motivates them to do better, and
2. Be compared against itself across time – to allow an assessment of how well a city has progressed over the years

Such a metric will, necessarily, include several indicators that represent different aspects of people`s needs. The package of indicators in such a metric can vary and it will be difficult to arrive at an universally agreed set of indicators to be used. This is evident from the fact that there exist more than 200 city ranking systems across the globe. Thus, having several such formulations of a metric is a good idea as it offers a more robust method of making comparisons. To give an example, there are multiple ranking systems for universities and prospective students make their choices based on a review of several such indices.

Almost all the Smart City indexing frameworks that currently exist predominantly cover cities of the developed world and their ranking frameworks also reflect the needs and

situation prevalent in the developed world. These are quite different from the needs and situation in developing economies such as India. Thus, there is a need to have one or more indices that are relevant to the Indian context and meet its needs. It is such a contextual index that would provide Indian cities with the right wherewithal to assess their relative positioning in the country in terms of overall quality of life and develop a well-informed action plan for improvement.

Accordingly, the Indian School of Business, through its Punj Lloyd Institute of Infrastructure Management has taken up the initiative of developing such an index. In doing so, it took into account similar indices developed in other parts of the world, but contextualized them to the Indian situation. This Index, being referred to as the "Smart Cities Index" aims to offer a framework that can be used for evaluating cities. A pilot exercise for ranking the million plus cities, using this index, has also been undertaken.

This report highlights the methodology used for developing the ranking framework and also the results of the pilot ranking of 53 million plus cities using the framework developed.

This project was funded by the Shakti Sustainable Energy Foundation (SSEF) and ISB gratefully acknowledges their contribution.

3 Potential Benefits of a "Smart Cities Index"

Having a metric to measure or rank cities, across multiple indicators, serves many purposes. Different stakeholders benefit from this in a variety of ways. For example:

City Governments will:

- Be able to judge how they perform vis a vis others in terms of the quality of services they offer to their citizens and also assess how they perform, vis a vis themselves, over time.
- Get a tool to monitor the impact of their investments, over time, through the individual performance indicators and the overall Index. This will help them to assess the kinds of actions that work well and those that do not. It will enable them to develop evidence based and well-informed plans with regard to the improvements they need to make.
- Get a framework to identify the improvements they need to make and to chalk out an action plan for effecting such improvements.
- Get a tool to inform their citizens about how they rank compared to others and also secure greater engagement from their citizens in the initiatives that they take up or should take up
- Get motivated to collect, compile and maintain an urban database in order to feature in the ranking system.

State and Central Government will get a tool to monitor the impact of various urban programs taken up from time to time. It will give them a tool to decide funding priorities, both amongst cities and amongst sectors. They would also be able to assess how different cities are performing and the actions they need to take at higher levels in the Government

to help improve the situation. For example, if most of the cities in a particular State face a similar problem then there may be supporting actions for the State Government to take. Similarly, if all cities face a common problem it may require supporting actions from the national government. More specifically, weak manpower capacity in all city administrations may require the central government to take up a national capacity building effort. However, if this problem is limited to only one or a few States, it would be adequate if only the respective States look into the issue.

- **Citizens** will get information on the state of their cities in a simple and lucid manner, thereby empowering them to demand improved services and a better quality of life. It would motivate them to meaningfully engage with their local government in helping improve the quality of life and the overall well-being in the city.
- **Investors** will get a scientific basis for deciding the best locations for their investments. They would be able to assess their risks better and take the appropriate mitigation measures before making investments. It would also help them to better negotiate with the cities before taking their decision
- **Potential new citizens** will get a sound basis for deciding which city they should settle down in. They would be able to make more informed choices through a comparison of multiple cities around indicators that are important to them.
- **Students** will be able to take informed decisions on where they should pursue their future education and be able to secure employment.
- **Senior citizens** will be able to compare different cities in terms of the quality of life the city could offer to them and the extent to which it could meet their unique needs of health care, safety and recreation.

Table 2 summarizes some of the potential benefits, as mentioned above, for a sample of stakeholders. However, this is only a sample of the value that can be derived from such an Index and many others will emerge as the Index matures over time and gets further refined.

Table 2: Potential benefits of a Smart Cities Index for various stakeholders

Stakeholder	Potential benefits from a Smart Cities Index
City Government	- Ability to judge performance vis a vis others and vis a vis themselves - Ability to monitor the impact of their investments and identify future needs - Identify the improvements they need to make and to plan for the future - Credibly inform their citizens about how they rank and also secure greater engagement from them - Get motivated to collect, compile and maintain an urban database
State & Central Government	- Ability to decide funding priorities and specific actions required at their levels to support cities
Citizens	- Information on the state of their cities in a simple and lucid manner

Stakeholder	Potential benefits from a Smart Cities Index
Potential Investors	- Scientific basis for deciding on where can invest
Potential new inhabitants	- Sound basis for deciding which city they should settle down
Students	- Ability to take informed decisions on where they should pursue their future education and seek employment
Senior Citizens	- Ability to compare different cities to take decisions on where they would like to live

4 Approach Adopted

The entire exercise involved two stages of work. The first stage involved the design and development of a framework for calculating the Smart Cities Index and for ranking cities. The second stage involved a pilot ranking of the 53 cities with more than a million population[2] in the country. In a way the second stage of the work was a test of the index and ranking framework. This can subsequently be expanded to cover any range of cities and need not be limited to million plus cities alone.

The first stage of designing a framework for calculating the Smart Cities Index involved the following steps:

1. Preliminary consultation with experts
2. Identification and clustering of indicators to be used
3. Determination of the metric to be used for calculating each indicator and identification of the data items to be collected
4. Sample data collection exercise to assess what data items would be reasonably available
5. Allocating weights to each indicator
6. Reviewing alternative indexing and ranking formulations and finalization of the framework to be used

The second stage of pilot testing across the 53 million plus cities involved the following steps:

1. Development of a "User Satisfaction Survey" questionnaire
2. Development of a data collection template
3. Collection of secondary data and conduct of user satisfaction survey
4. Computation of the city scores and undertaking the indexing and ranking exercise

While the work was primarily undertaken in the Indian School of Business, through its Punj Lloyd Institute of Infrastructure Management, several consultation workshops were held with experts, whose advice lent immense value to the work undertaken. The following consultation workshops were held on:

[2]Based on urban agglomeration population, Census of India ,2011.

- 9th and 10th March 2015 at ISB's campus in Mohali
- 6th and 7th April 2015 at ISB'S campus in Mohali
- 11th May, 2015 at the India Habitat Center in New Delhi
- 19th August 2016 at the India Habitat Center in New Delhi

Details of the work done and the approach adopted in each of the steps, spelt out earlier, are given in the sections that follow.

Stage 1 – Design and Development of a Framework for the Calculating the Smart Cities Index and Ranking Cities

Step 1: Preliminary consultation with experts.

Towards identifying the possible indicators that should be included in the Smart Cities Index and developing a ranking framework, it was decided to start with a consultation workshop with a number of experts. Accordingly an experts' consultation workshop was held in Mohali on 9th and 10th of March, 2015. Experts were drawn from within the Indian School of Business as well as from outside. The external experts came from a variety of agencies covering think tanks, consultants, academic institutions and industry. A list of the participants at this workshop is at Annex 1.

During this workshop multiple internationally used smart city indices were reviewed in order to evaluate their relevance to the Indian context. It was found that most of them used several indicators that are not very relevant in the current Indian context. For example, indicators such as commercial air connectivity, percentage of revenue from public transit obtained via a unified smart card system, use of technologies like live streaming video cameras/predictive crime software technologies, etc. were premature in the current stage of development of India's cities. It was therefore, decided that a new index framework be developed. However, in order to avoid re-inventing the wheel, some of the more commonly used international indexing frameworks could be used as a base. A deep dive exercise into the indicators used in these internationally used indexing frameworks should be carried out to identify those that are relevant. In additional new indicators that are more relevant to the Indian context may be added.

The consultation workshop also recommended that a three tier set of indicator clusters be created so that each cluster could have its own index and ranking to help sub-sets of stakeholders. For example some stakeholders may only be interested in quality of life in a city whereas others may only be interested in the quality of mobility or connectivity that the city offers. Yet others may be primarily interested in the economic opportunities that the city offers. Accordingly, clusters of indicators would be more useful and would also make an understanding of the index simpler.

The workshop recommended that a composite Smart Cities Index could comprise the following six broad sub-categories of indices:

1. Living: Represents the quality of life and availability of basic services.
2. Governance: Largely represents the responsiveness of the the local body and its service quality.

3. People: Represents the level of education and inclusiveness of the residents of a city.
4. Economy: Represents the extent of economic opportunities that a city offers.
5. Mobility: Represents the ease with which people can move around and access jobs, education etc.
6. Environment: Represents the air quality and the use of sustainable practices.

For convenience and to facilitate easier understanding, each of these was termed as a "Characteristic". Detailed indicators that would constitute each of these "Characteristics" had to be decided upon. It was decided that this should be done through a deep dive exercise to review indicators used in the major Smart City indexing frameworks used internationally.

Step 2 – Identification and clustering of the indicators to be used in calculating the Smart Cities Index

Following up on the discussions in the first experts consultation workshop a team in ISB's Punj Lloyd Institute of Infrastructure Management, supported by colleagues from ISB's Bharati Institute of Public Policy, Max Institute of Healthcare Management and Munjal Institute of Global Manufacturing Management did an intense review of the indicators included in three of the best known international smart city indexing frameworks, namely:

- Smart Cities Council ranking framework: http://smartcitiescouncil.com/resources/smart-city-index-master-indicators-survey
- European Union Smart Cities Ranking framework: http://www.smart-cities.eu/download/smart_cities_final_report.pdf
- ISO 37120 – Indicators for city services and quality of life: https://www.iso.org/obp/ui/#iso:std:iso:37120:ed-1:v1:en

The review involved a complete understanding of each of the indicators, and an assessment of what is relevant in the Indian context. It also involved a discussion on additional indicators that could be included. 57 indicators in Smart Cities Council ranking framework, 74 in European Union Smart Council framework and 96 in ISO 37120 were reviewed to identify those that could be retained. Based on the review, 42 indicators were retained and 16 new indicators were developed. A list of these indicators, along with their sources from where they were drawn from, is given in Annex – 2.

Following the identification of the indicators, these were first clustered into logical and closely associated groups. For convenience, these groups were termed as "Factors". Each of the "Factors" was then mapped into one or other of the six "Characteristics" that had been agreed upon.

Thus, a three tier hierarchy comprising "Characteristics" at the highest level, "Factors" at the second level and "Indicators" at the third level, as shown in Figure 1, emerged. Each "Characteristic" was composed of several "Factors" and each "Factor" had several "Indicators". The list of "Factors" under each "Characteristic" has been shown in Figure 2 and list of "Indicators" under each Factor has been shown in Table 3.

Figure 1 : Smart Cities Index Framework

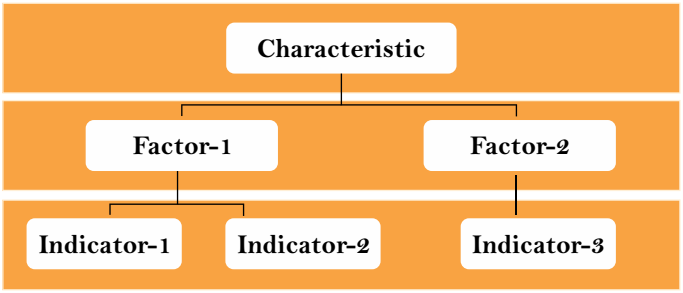


Figure 2 : Characteristics and their Factors

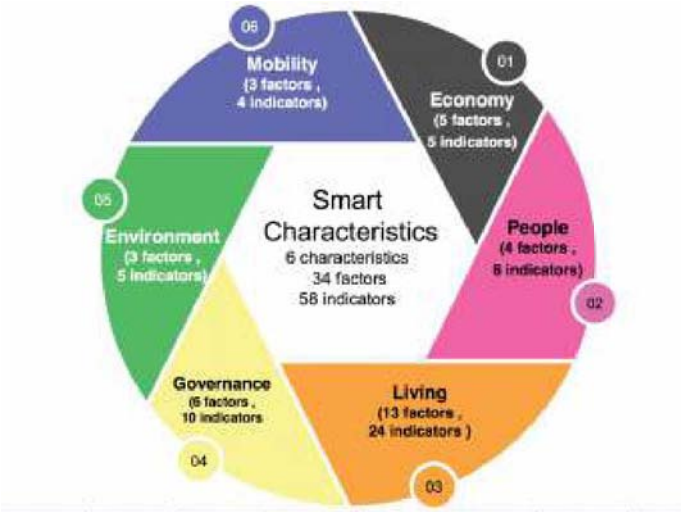


Table 3: Factors and their Indicators

Characteristics	Factor	Indicator
Living	Energy	Access to electricity
		Quality of electricity supply
	Water supply	Access to water supply
		Adequacy of water supply
	Emergency	Fire safety provisions
	Health	Maternal health
		Infant health
		Quality of healthcare facilities
	Security	Crime incidence
		Physical Crime Incidence
		Personal Crime Incidence
		Economic Crime Incidence
	Shelter	Slum population
		Overcrowding
		Homelessness
	Solid waste	Access to solid waste collection
	Drainage	Coverage of storm water drains
		Quality of storm water drainage facilities
	Sewerage	Access to sewerage network
	Sanitation	Access to household sanitation
		Access to public sanitation
	Education	Adequacy of education facilities
		Adequacy of higher education facilities
		Adequacy of skilling facilities
		Quality of school education
	Heritage	Emphasis on heritage conservation
	Recreation	Quality of recreational facilities

Characteristics	Factor	Indicator
Economy	Employment levels	Unemployment rate
	Income	GDP
	Equity	Income distribution
	Entrepreneurship	Growth of new businesses
	Gender equality	Workforce participation of women
People	Graduates	Higher education
	Inclusiveness	Gender inclusivity
		Ethnic/ regional inclusivity
	Participation	Engagement with city administration
	Technology sophistication	Internet penetration
		Telecom penetration
Governance	Efficiency	Water distribution efficiency
	Urban planning	Planning framework
		Use of technology
		Staffing adequacy
	Disaster Management	Disaster Management Framework
	E-Governance	Ease of access to government services
	Transparency	Public access to ULB's finances
	Finance	Spending capacity
		Spending autonomy
		Property Tax Collection
Environment	Air pollution	PM 2.5 concentration
	Noise Pollution	L-EQ-Levels
	Sustainability	Sewage recycling
		Solid waste recycling
		Use of renewable energy
Mobility	Sustainability	Share of Green Modes
	Efficiency	Trip Length
		Travel Time
		Vehicle Ownership
	Safety	Road Safety

Step 3 – Determination of the metric to be used for calculating each indicator and identification of the data items to be collected

Each indicator was derived through a computation of one or more data items. Once the list of indicators was decided upon, the ISB team brainstormed on the metric to be used for measuring each indicator. To support this effort a second consultation meeting was held with two external experts (Rohit Talwar & Anand Madhavan from Siemens and ICRA), on 6th & 7th April 2015, at Mohali.

It was realized that while quantitative metrics were possible for most of the indicators, this would not be possible for a few of the others. These would require a qualitative "user satisfaction survey" as well as a mechanism for converting these qualitative results into quantitative numbers. Further, for some of the indicators, even if a quantitative metric is possible, it would be very difficult to get the required quantitative data and, therefore, a qualitative user satisfaction survey may have to serve as a proxy.

A complete mapping of all the Characteristics, Factors and Indicators, along with the metric used for computing each indicator is given at Annex 2.

Step 4 - Sample data collection exercise to assess what data items would be reasonably available

Once the list of indicators and the data items to be collected was finalized, it was decided to undertake a pilot data collection exercise to assess which of the data items would be reasonably available and which would either not be available or very difficult to get. For this purpose data was collected from Ahmedabad and Surat to give the team an idea of whether a certain data item would be reasonably available or not.

Step 5 – Allocating weights to each indicator

While a Smart Cities Index would have multiple component indicators, each of these indicators need not have equal weight while computing the composite index. The weight assigned to each would depend on the relative importance of that indicator.

Participants at the workshop held at Mohali on 9th and 10th March 2015 had also brainstormed on possible weights that could be assigned to each indicator. Breakout sessions involved participants working in smaller groups to arrive at appropriate weights. On the whole the view was that no assignment of weights would secure universal agreement or be completely justifiable as there would be differences based on need. Hence, it was agreed that equal weights be assigned to each "Factor" within a "Characteristic". This would automatically mean that the number of "Factors" within a "Characteristic" would influence the weight assigned to that "Characteristic". Similarly, the number of "Indicators" within a "Factor" would determine the relative weight of that indicator. Thus, if a "Characteristic" comprised twice as many "Factors" compared to another, it would have twice as much weight. Similarly, if an "Indicator" constituted one out of 5 such Indicators within a "Factor" it would have a weight of 20% of that "Factor" and if another "Indicator" was one of two "Indicators" within a "Factor" it would have 50% of the weight within that "Factor".

However, in doing so it was important to ensure that there was no multi-collinearity as that would skew the weights and lead to double counting. It was also suggested that each "Characteristic" could have an index of its own, apart from there being a comprehensive Smart Cities Index. It is also possible for each Factor to have an index of its own.

Step 6 – Developing an Indexing and Ranking Framework

Several alternatives to the methodology of calculating the Smart Cities Index were debated. Variations of method of Z score and method of Dimensional Indexing were considered for ranking the cities.

Using the Z score ranking method for final computation could have given a skewed ranking for the cities performing very well across few indicators as against the cities performing reasonably well across a large number of indicators. The Dimensional index methodology would have required a benchmark performance metric for all the indicators. Since many of the indicators do not have a benchmarked performance, using the dimensional indexing method would have given an unreliable ranking of cities. Summary of methodologies considered is placed at Annexure 3.

Thus, through several iterations within the team, and in consultation with some experts, it was decided that the Smart Cities Index would be arrived at in the following manner:

- Individual indicator values for each city would be reviewed to find out the range of values within which the cities fell for that indicator. Some clear outlier numbers would be removed. The remaining range would be divided into 10 equal deciles from the highest to the lowest values.
- For the Indicators with a desirable higher value (i.e. higher the better, example: GDP), Cities that fell in the highest decile would be given a score of 10, those in the next decile would get a score of 9 and so on till the cities in the lowest decile would get a score of 1. For the Indicators with a desirable lower value (i.e. lower the better, example: unemployment rate, homelessness), Cities that fell in the highest decile would be given a score of 1, those in the next decile would get a score of 2 and so on till the cities in the lowest decile would get a score of 10.
- For the missing data point the average of other Indicators within the same Factor would be used as a proxy.
- Once marks were available for each Indicator in a city, these would be added up for all the Factors and divided by the number of Indicators within the factor. Hence, a Factor specific index would get generated.
- The Factor Specific Indices under each Characteristic would then be added to arrive at the Characteristic specific index. Finally the Characteristic specific indices for a city would be added up to arrive at the comprehensive "Smart City Index".

Hence, the computation described above was found to be the most elegant by the team and so this was adopted. Such a ranking method was used as there were doubts about the complete accuracy and reliability of the data and hence this method would help limit the adverse impact of any minor data errors.

Stage 2 – Pilot testing for 53 million plus cities

Testing of the Index framework required collection of the data required to calculate each indicator and also the collection of user perception through surveys. The following steps were followed for this.

Step 1: Development of a user perception survey questionnaire

Several indicators, such as Quality of Electricity Supply, Quality of Health Care, Quality of Recreational facilities, etc. were not amenable to a quantitative assessment and needed to be assessed through a user satisfaction survey. Hence a "User Satisfaction Survey

questionnaire" was developed. This survey primarily sought to seek answers from a sample of city residents on their level of satisfaction with regard to specific services. The responses were to be sought on a scale of 1 to 10 where 1 = Very Poor and 10 = Excellent. A copy of this questionnaire is given at Annexure 4.

The detailed process followed in developing a sample and carrying out the survey is given at Annexure 5.

Step 2: Development of a data collection template

Each indicator that was amenable to quantitative assessment was a computation of one or more data items. For example the number of higher secondary schools in city was computed as total number of higher secondary schools in that city for every hundred thousand population. Once the data items required for measuring each indicator, amenable to quantitative assessment, was finalized, a list of the data items that needed to be collected, along with the respective units was listed on a table to make the task of data collection simpler. This table constituted the data collection template.

Step 3 - Collection of data and conduct of user perception surveys

A professional agency, was hired to collect the required data from the cities and also to carry out the user perception survey using the questionnaire developed by the team. The data collection template was shared with the agency and series of discussions were held to identify the possible sources of data points. Thereafter, surveyors from the agency were trained by the team on collecting data for specific indicators. The team also pitched in to collect/assist surveyors in collecting data from few cities. The detailed list of data points and sources from where it had been collected by the agency is given at Annexure 6.

Step 4 - Computation of the Index and Final Ranking

The team used the Index computation framework to generate the Smart Cities Index and rank the cities based on the Comprehensive Smart Cities Index as also the Index for each Characteristic.

While undertaking this exercise, the team encountered the following problems:

- For some cities several data items were not available
- Some specific data items were not available for several of the cities

To get around these problems, the team adopted the following approach:

- For the cities where some of the data items were missing, an average of the score for other indicators within the same "Factor" was used as a proxy.
- Specific data items which were not available for at least 35 cities were dropped off from the list of indicators. For example, level of "noise pollution" was not available for 36 cities and so it was not included in final computation of the Index. Thus, the following Indicators were removed from the final computation: 1) Disaster Management Framework 2) Travel Time, and 3) Noise Pollution.

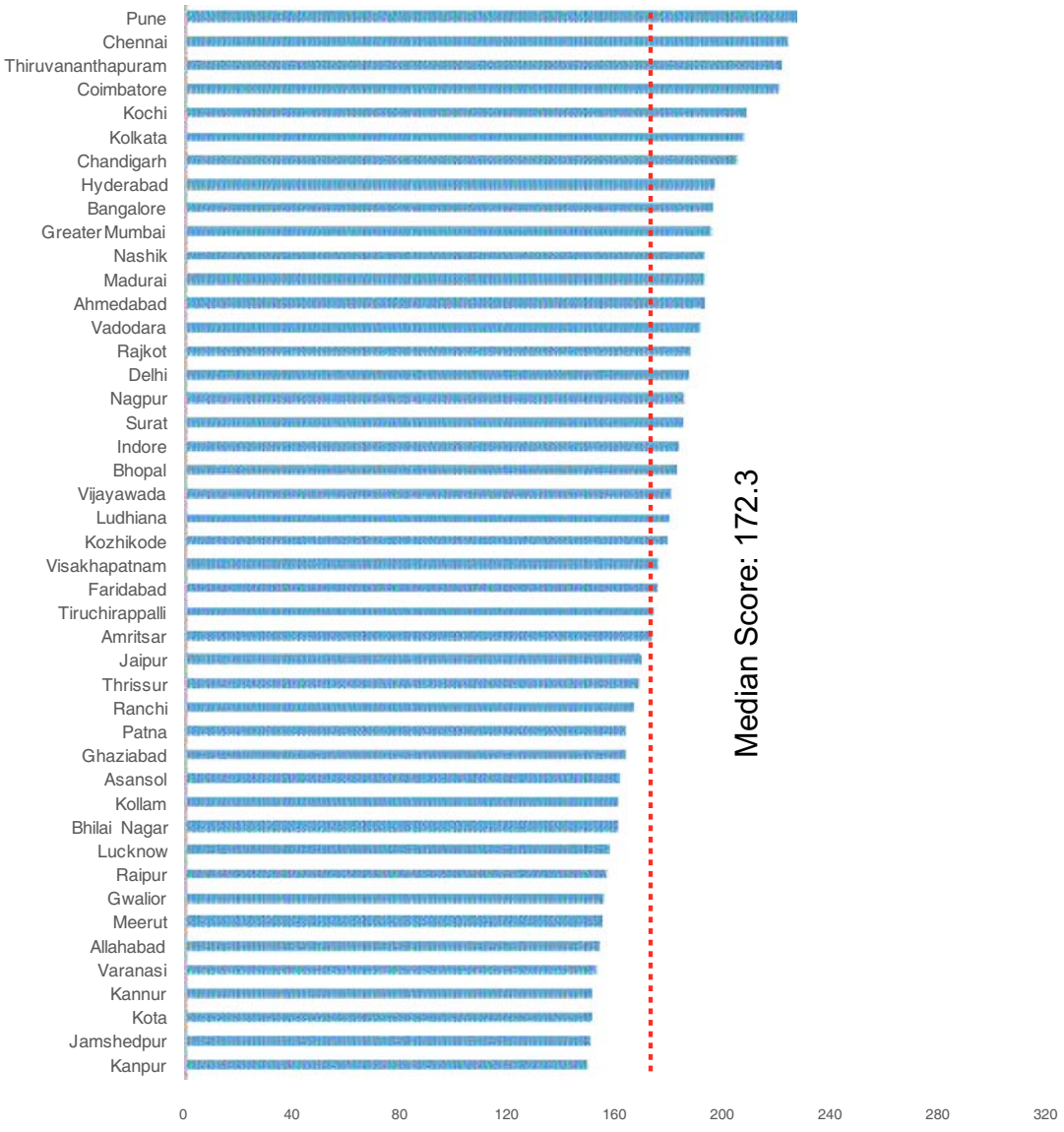
5 Results

The results of the pilot ranking of cities, based on the methodology highlighted above, have been presented in this section.

5.1 Composite Smart Cities Index

Figure 3 below presents the scores of the different cities on the composite Smart Cities Index. With a total of 32 factors[3] for final computation , maximum score obtainable by a city was 320. Pune emerged as the top city with a score of 226 followed by Chennai (223) , Thiruvananthapuram (220) and Coimbatore (219.4).

Figure 3: Composite Smart Cities Index for top 45 Cities

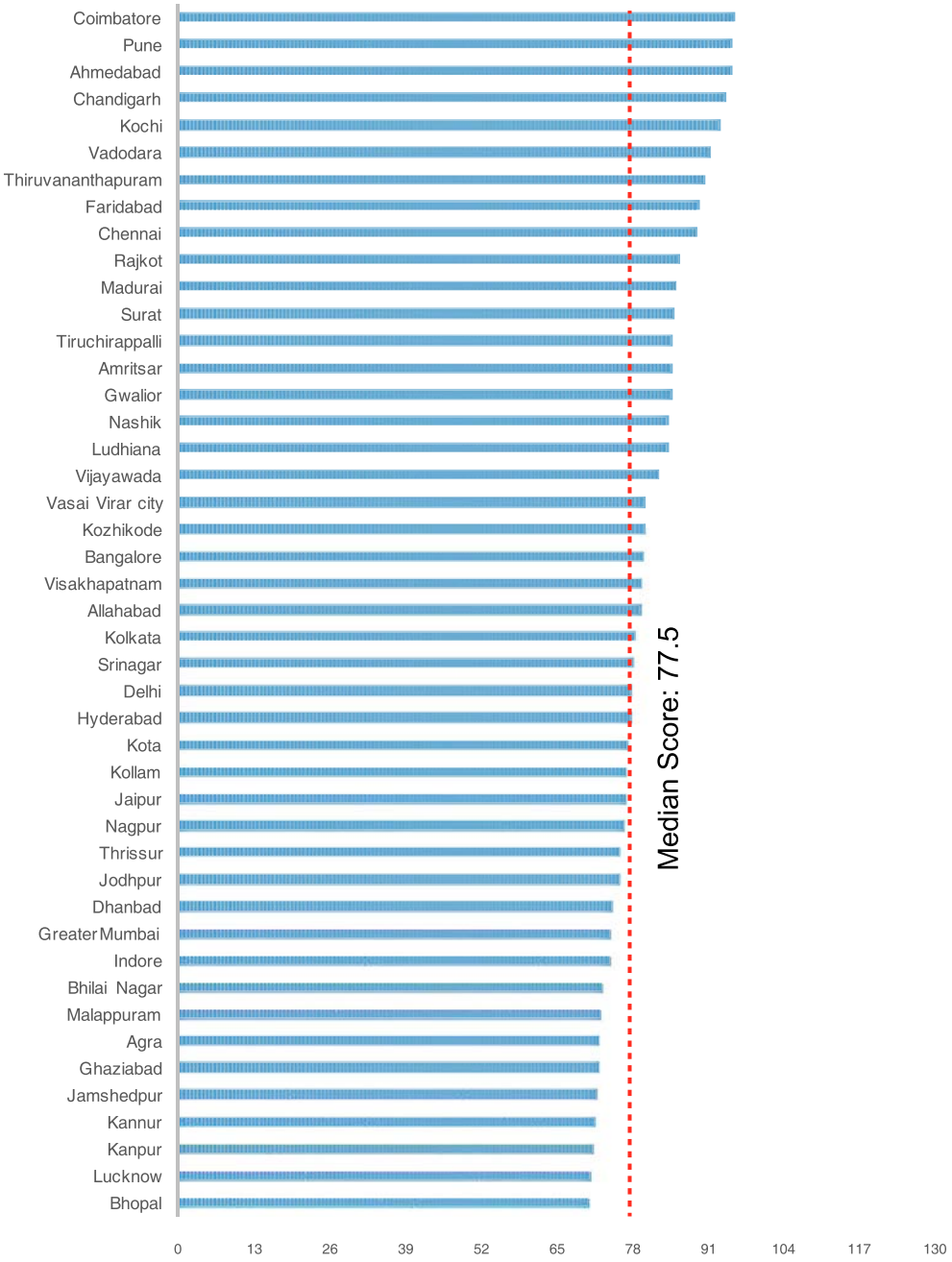


[3] Two factors were dropped out of 34 because of unavailability of data (see step 4 of stage 2 section 4 of the report)

5.2 Living Index

Figure 4 below presents the scores of the different cities on the Living Index. With 13 factors considered, the maximum obtainable score for a city was 130. Coimbatore scored the highest with 95.54 followed by Pune (94.83), Ahmedabad (94.82) and Chandigarh (93.7).

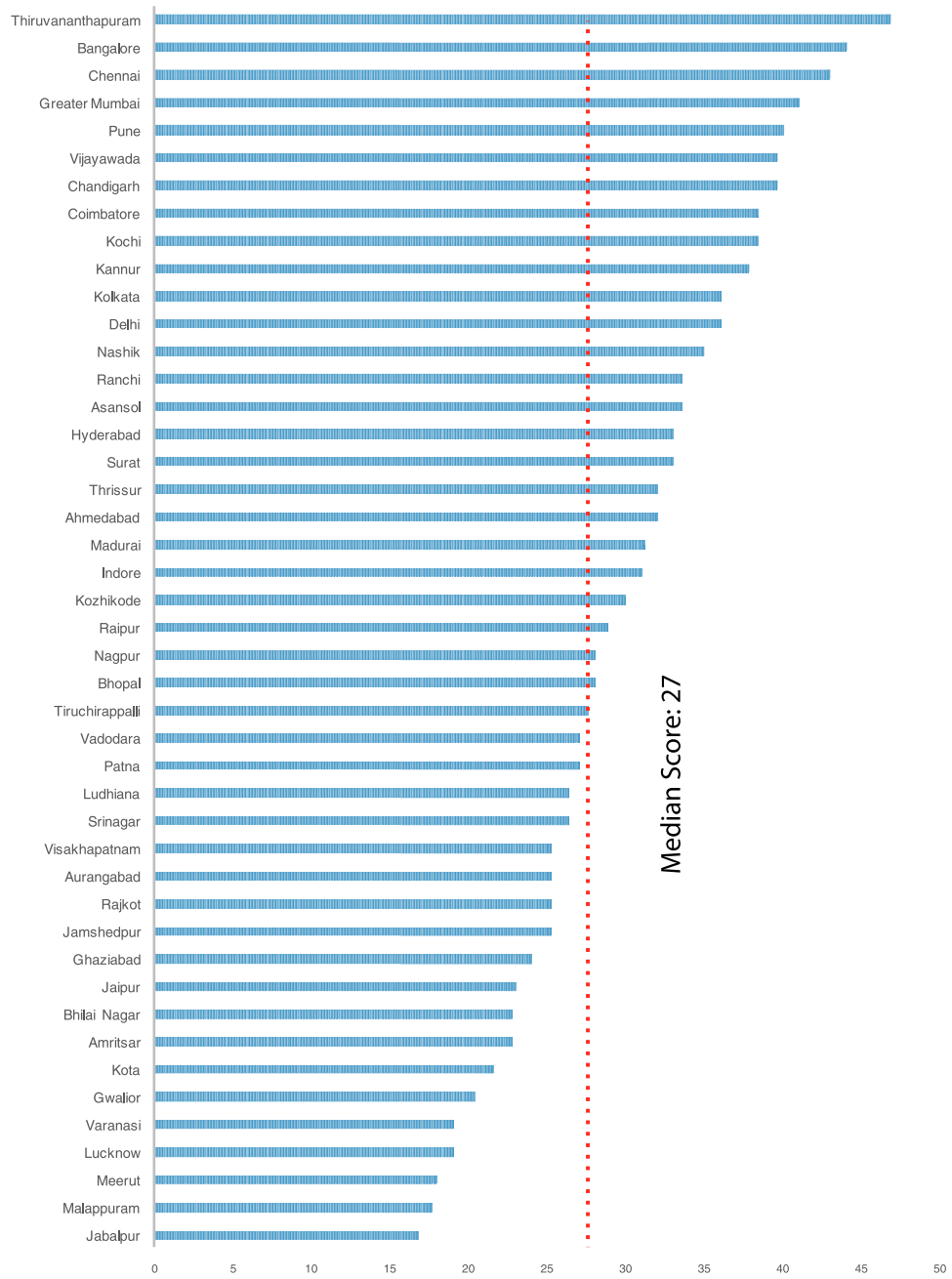
Figure 4: Living Index for top 45 Cities



5.3 Economy Index

Figure 5 below presents the scores of the different cities on the Economy Index. With 5 factors under this Index, the maximum obtainable score for a city was 50. Thiruvananthapuram scored the highest with 46.8, followed by Bangalore (44), Chennai (43) and Greater Mumbai (41).

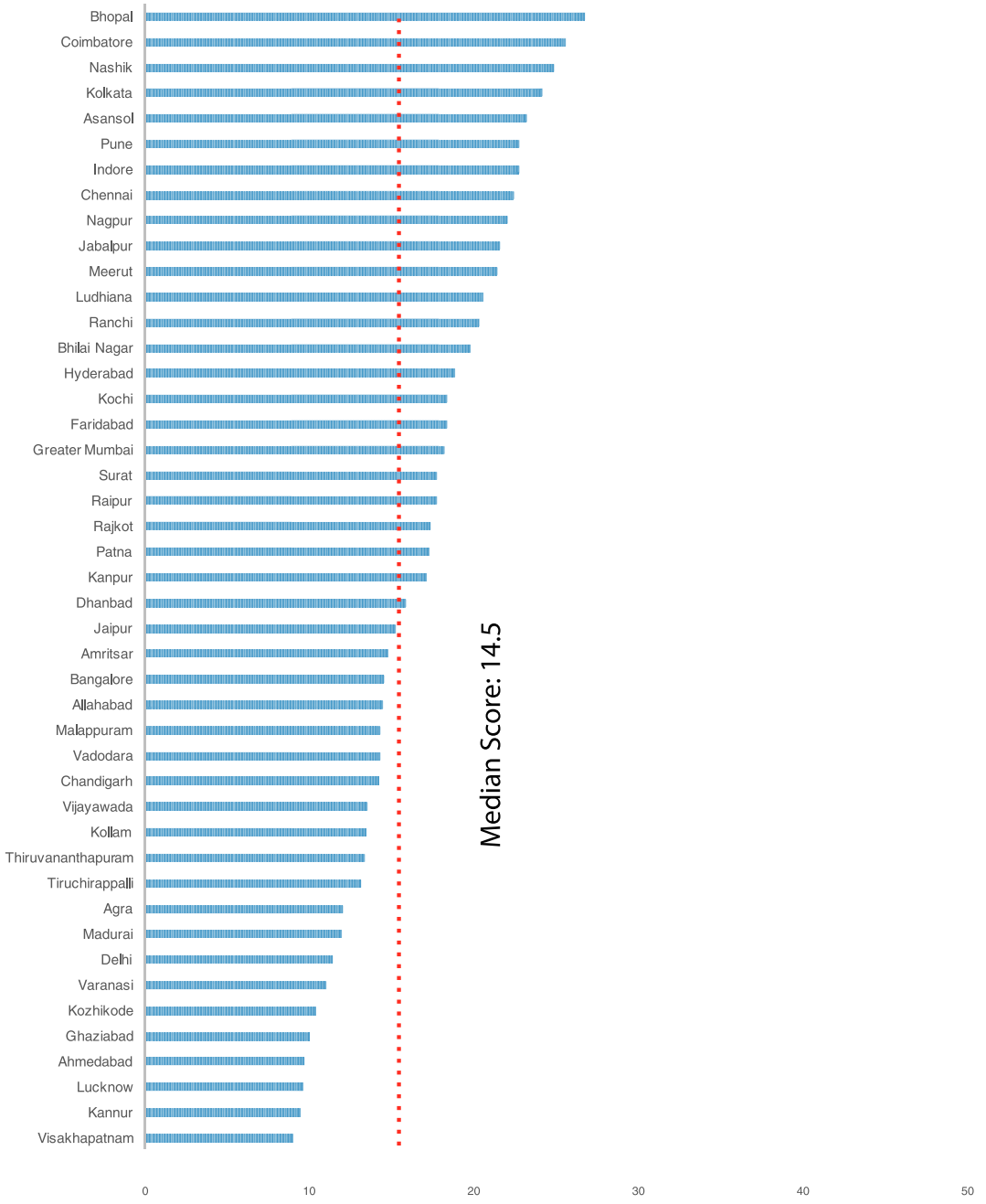
Figure 5: Economy Index for top 45 Cities



5.4 Governance Index

Figure 6 below presents the scores of the different cities on the Governance Index. With 5 factors[4] under this Index, maximum obtainable 2 score for a city was 50. Bhopal scored the highest with 26.67, followed by Coimbatore (25.50), Nashik (24.81) and Kolkata (24.1).

Figure 6: Governance Index for top 45 Cities

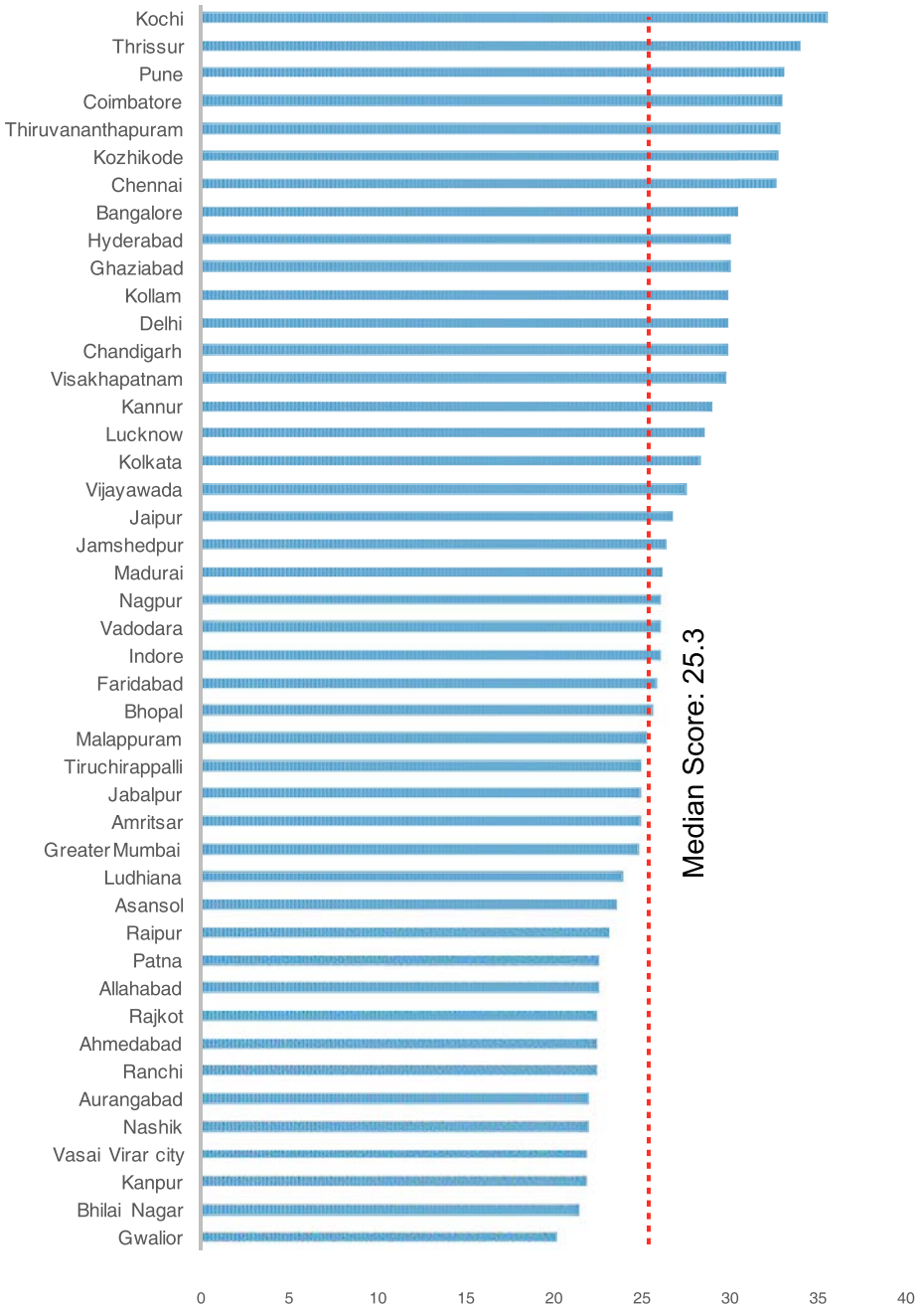


[4]Factor disaster management framework was dropped because of unavailability of data (see step 4 of stage 2 section 4 of the report)

5.5 People Index

Figure 7 below presents the scores of the different cities on the Governance Index. With 4 factors under this Index , maximum obtainable score for a city was 40. Kochi scored highest with 35.53, followed by Thrissur (33.96), Pune (33.13) and Coimbatore (33).

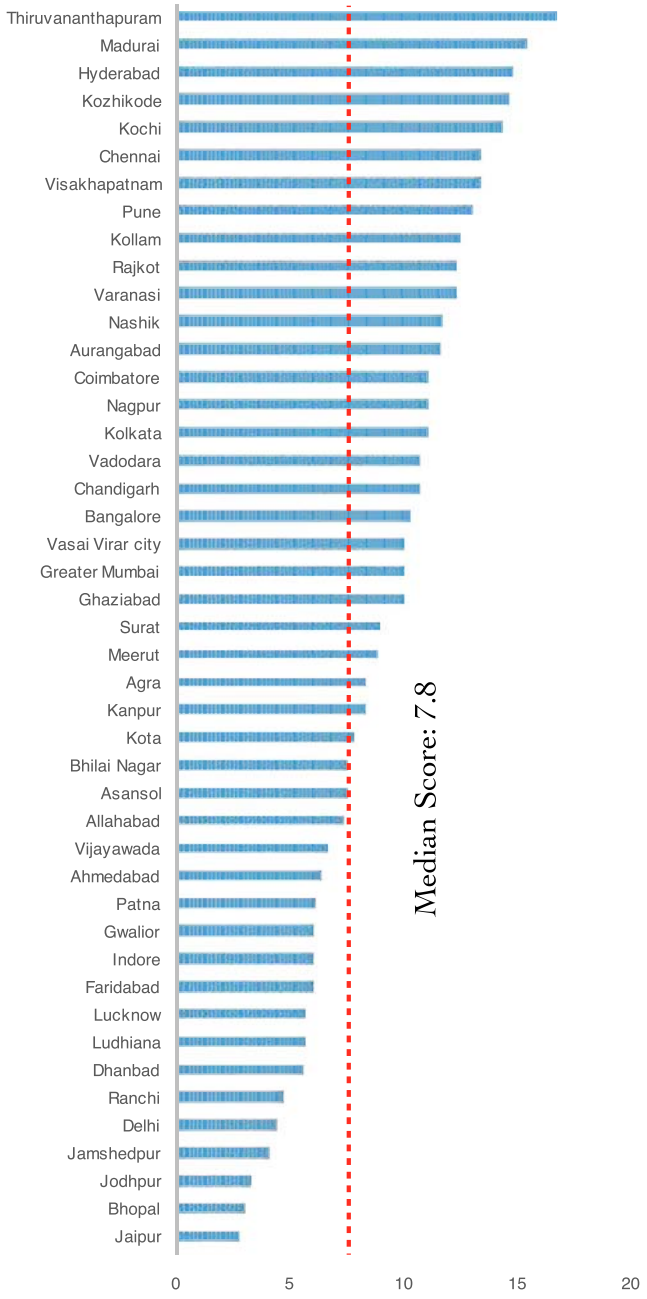
Figure 7: People Index for top 45 Cities



5.6 Environment Index

Figure 8 below presents the scores of the different cities on the Governance Index. With 2 factors , maximum obtainable score for a city was 20. Thiruvananthapuram scored the highest with 16.67, followed by Madurai (15.42), Hyderabad (14.83) and Kozhikode (14.6).

Figure 8: Environment Index for top 45 Cities

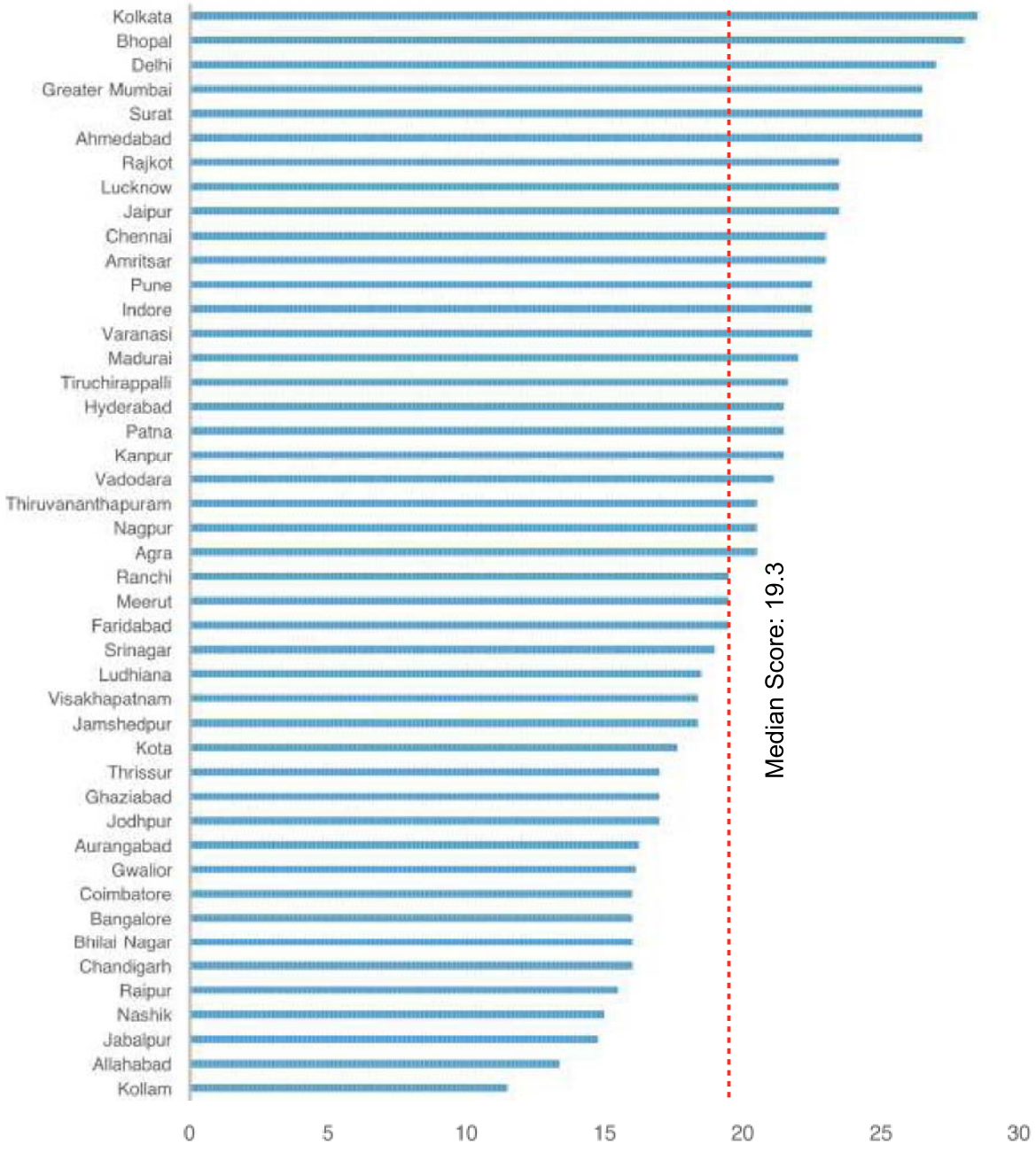


[5]Factor noise pollution was dropped because of unavailability of data (see step 4 of stage 2 section 4 of the report)

5.7 Mobility Index

Figure 9 below presents the scores of the different cities on the Mobility Index. With 3 factors, maximum obtainable score for a city was 30. Kolkata scored highest with 28.50, followed by Bhopal (28.00), Delhi (27.00) and Greater Mumbai (26.5).

Figure 9: Mobility Index for top 45 Cities



6 Benchmarking

The ISB team has not developed any benchmarks for the service quality standards. Instead comparisons have been made across cities rather than vis a vis a benchmark. The reasoning for this has been that while comparison against a benchmark would be necessary when an assessment is made of a single city, such a benchmark may not be necessary when comparisons are made across multiple cities. Besides, benchmarks may have to be different from place to place and may even change with time. For example the benchmark for water supply in Assam, which has plenty of river water, could be more lenient when compared to the benchmark for water supply in Rajasthan. Similarly, as water conservation efforts are taken up, benchmarks could be modified.

However, we do recognize that a comparison against benchmarks would help understand how far even the best performing cities are vis a vis such benchmarks. Therefore, we have added Table 4 which shows the performance for the 5 best cities for Coverage of water supply, Extent of non revenue water, Coverage of toilets, Household level solid waste management system and Per capita supply of water against the benchmarks developed by Ministry of Urban Development, GOI. This does show significant gaps between the benchmark and the best performing cities in several case. This exercise would be worth undertaking for all the services. We have not been able to do so due to paucity of time but would undertake this as a follow up exercise.

	Coverage of Water Supply Connections (%)	Extent of Non Revenue Water (%)	Coverage of Toilets (%)	Household Level Solid Waste Management System (%)	Per Capita Supply of Water (lpcd)
Benchmark	100	20	100	100	135
Pune	94	30	98	73.90	235
Chennai	55	NA	91.59	100	58
Thiruvananthapuram	78	19	100	50	165
Coimbatore	NA	NA	87.11	100	58
Kochi	70	32	90	100	130

7 Next steps

We feel that this work would be worth carrying forward. While this exercise has resulted in a pilot testing of the indexing framework, this test will help identify refinements that need to made in the choice of indicators, the clustering of these indicators and the allocation of weights to each indicator. Hence, regional dialogues to discuss these issues and bringing about synergies with similar exercises undertaken by the Ministry of Urban Development and others would help in bringing out an improved methodology for ranking cities and hopefully spurring them towards improvement. We do hope an annual ranking of cities will help create healthy competition that would benefit all cities.

Annexes

Annexure 1: List of Participants in workshops

Date: 9th & 10th March, 2015

S No.	Name	Organization
1	Anouj Mehta	Asian development bank
2	Sandhya Srinivasan	Center for policy initiatives(CPI)
3	Shivanand Swamy	Centre for Environmental Planning and Technology University (CEPT University)
4	Manvendra Deswal	Confederation of Indian Industry (CII)
5	Megha Gupta	Ernst & Young
6	Karuna Gopal	Foundation for Futuristic Cities
7	Ajai Mathur	Infrastructure Leasing & Financial Services (IL&FS)
8	Shreya Gadepalli	Institute for Transportation and Development Policy (ITDP)
9	Bhanu Chander	Institute of Urban Transport (IUT), India
10	Jagan Shah	National Institute of Urban Affairs (NIUA)
11	Deepa Kapoor	Punj Lloyd
12	Mahua Acharya	The Global Green Growth Institute
13	Deepak Verma	Urban Mass Transit Company Limited (UMTC)
14	Shubo Haldar	Infrastructure Development Corporation Limited (IIDC Limited)
15	Amit Bhatt	World Resource Institute (WRI), India
16	Kaushiki Sanyal	Indian School of Business
17	Gaurav Dubey	Indian School of Business
18	Geetha Krishnan	Indian School of Business
19	Kumara Guru	Indian School of Business
20	Mandar Kagade	Indian School of Business
21	Om Prakash Agarwal	Indian School of Business
22	Prajapati Trivedi	Indian School of Business
23	Rajesh Chakrabarti	Indian School of Business
24	Sowmya Shashidhara	Indian School of Business

Annexure 2: List of Characteristics, Factors, Indicators , Computation metric & Sources of Indicators used in this project.

Characteristics: 6, Factors: 34, Indicators: 58
Characteristic: Living
1) Number of Factors: 13
2) Number of Indicators: 27

Factor	Indicator	Metric	Source
Energy	Access to electricity	Percentage of city households with electricity access	Smart Cities Council, ISO 37120
	Quality of electricity supply	User satisfaction with electricity supply	ISO 37120
Water supply	Access to water supply	Percentage of city population with potable water supply service	ISO 37120
	Adequacy of water supply	Total water supply per capita per day	Smart Cities Council, ISO 37120
Emergency	Fire safety provisions	Number of fire related deaths per 100,000 population	Smart Cities Council, ISO 37120
Health	Maternal health	Maternal Mortality Rate	Developed for the Project
	Infant health	Infant Mortality Rate	ISO 37120
	Quality of healthcare facilities	User satisfaction with healthcare facilities in the city	EU Smart Cities Ranking, ISO 37120
Security	Crime incidence	Number of major crimes per 100,000 population in past year	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
	Physical crime Incidence	Number of major crimes per 100,000 population in past year	Developed for the Project
	Personal crime incidence*	Number of major crimes per 100,000 population in past year	Developed for the Project
	Economic crime incidence*	Number of major crimes per 100,000 population in past year	Developed for the Project
Shelter	Slum population	Percentage of city population living in slums	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
	Overcrowding	Percentage of households living in overcrowded conditions	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
	Homelessness	Percentage of homeless population	ISO 37120
Solid waste	Access to solid waste collection	Percentage of city population with regular solid waste collection (residential)	ISO 37120
Drainage	Coverage of storm water drains	Percentage of road network with covered storm water drains	Developed for the Project
	Quality of storm water drainage facilities	Percentage of incidences of oods on roads in a year	Developed for the Project

Sewerage	Access to sewerage network	Percentage of city population served by sewage network	Smart Cities Council, ISO 37120
Sanitation	Access to household sanitation	Percentage of households with toilets	Smart Cities Council, ISO 37120
	Access to public sanitation	Number of public toilets per 100,000 population	Developed for the Project
Education	Adequacy of education facilities	Number of Higher Secondary Schools per 100,000 population	ISO 37120
	Adequacy of higher education facilities	Number of UGC recognized University / Institute of National Importance per 100,000population	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
	Adequacy of skilling facilities	Number of ITIs per 100,000 population	Developed for the Project
	Quality of school education	User satisfaction with primary and secondary education in the city	EU Smart Cities Ranking, ISO 37120
Heritage	Emphasis on heritage conservation	Number of museums per 100,000 population	EU Smart Cities Ranking
Recreation	Quality of recreational facilities	User satisfaction with recreational facilities (including sports) in the city	ISO 37120

Characteristic: Economy

1) Number of Factors: 5
2) Number of Indicators: 5

Factor	Indicator	Metric	Source
Employment levels	Unemployment rate	City's unemployment rate	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
Productivity	GDP	GDP per Capita	Smart Cities Council, EU Smart Cities Ranking
Equity	Income distribution	Percentage of marginalized HHs	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
Entrepreneurship	Growth of new businesses	Average annual registration of businesses per 100,000 population (last 5 years)	EU Smart Cities Ranking, ISO 37120
Gender equality	Workforce participation of women	Percentage of women in workforce	Developed for the Project

Characteristic: Governance

1) Number of Factors: 6
2) Number of Indicators: 10

Factor	Indicator	Metric	Source
Efficiency	Water distribution efficiency	Percentage of Non-revenue water	ISO 37120
Urban planning	Planning framework	Existence of an approved Master Plan for the current time	Developed for the Project
	Use of technology	Existence of a GIS map	Developed for the Project
	Staffing adequacy	Number of certified town planners working in ULB per 100,000 population	Developed for the Project
Disaster Management	Disaster management framework *	Existence of disaster management plan	Smart Cities Council
E-Governance	Ease of access to government services	Number of government services that can be accessed by citizens via web or app (out of a standard list)	Smart Cities Council
Transparency	Public access to ULB's finances	Existence of audited balance sheets of ULB in public domain annually	EU Smart Cities Ranking
Finance	Spending capacity	Capital expenditure of ULB per 100,000 population	ISO 37120
	Spending autonomy	Percentage of own revenue to total revenue	ISO 37120
	Property Tax Collection	Property Tax Collected : 85% coverage & 90 % Collection	Developed for the Project

Characteristic: People

1) Number of Factors: 4
2) Number of Indicators: 6

Factor	Indicator	Metric	Source
Graduates	Higher education	Number of persons with graduate degree per 100,000 population	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
Inclusiveness	Gender inclusivity	Sex ratio	Developed for the Project
	Ethnic/ regional inclusivity	Attitude towards in-migrants	EU Smart Cities Ranking
Participation	Engagement with city administration	Voter participation in last municipal elections	Smart Cities Council, EU Smart Cities Ranking
Technology sophistication	Internet penetration	Number of broadband connections per 100,000 population	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
	Telecom penetration	Number of cell phone connections per 100,000 population	Smart Cities Council, EU Smart Cities Ranking

Characteristic: Mobility

1) Number of Factors: 3
2) Number of Indicators: 5

Factor	Indicator	Metric	Source
Sustainability	Share of green modes	Total NMT + PT modal share	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
Efficiency	Trip length	Average trip length	Developed for the Project
	Trip Time*	Average trip time	Developed for the Project
	Vehicle Ownership*	Registered Number of Vehicles per 100,000 population	ISO 37120
Safety	Road Safety	Road accident deaths per 100,000 population	EU Smart Cities Ranking, ISO 37120

Characteristic: Environment

1) Number of Factors: 3
2) Number of Indicators: 5

Factor	Indicator	Metric	Source
Air pollution	PM 2.5 concentration	Average annual PM 2.5 levels	Smart Cities Council, EU Smart Cities Ranking, ISO 37120
Noise Pollution	L -eq level *	Average annual L -eq level	ISO 37120
Sustainability	Sewage recycling	Percentage of sewage water recycled	ISO 37120
	Solid waste recycling	Percentage of solid waste recycled	Smart Cities Council, ISO 37120
	Use of renewable energy	Percentage of HHs using renewable energy as power source	Smart Cities Council, ISO 37120

* These Indicators were not the part of preliminary set of Indicators. They were included during the final computation of Index

Annexure 3: List of Alternate Methodologies Considered

1) Method of Z score (Various Various) The Z score is a measure of the number of standard deviations that an observation is above or below the mean. Since standard deviation is never negative, a positive Z score indicates that the observation is below the mean. For computing ranking of cities, it was important to standardise indicator values for the purpose of aggregation. Fo this a method Z score was used for the standardisation of indicator values.

$$z_i = \frac{x_i - \bar{x}}{s}$$

Zi = Z score of Indicator I,

Xi = Value of the Indicator I

X = Average of Indicator i

S =Standard Deviation

Z scores of each of the indicator was multiplied by (+1) or (-1) depending upon whether a higher value for that indicator is desirable (higher the better, such as sex ratio) or a lower value is desirable (Lower the better, such as crime rate).

Using this method Ranking could have got skewed for cities performing very well across few indicators for which data is available as against the cities performing average across large number of indicators. To address, the skew each allocated an availability factor ranging from 0 to 100 (100 indicating 100% -data is available for all 53 cities). Final score of each city calculated was first Z scores multiplied by availability factor aggregator and then divided the number of indicators for which data is available for a city.

2) Dimensional Index Methodology

All the indicator do not have same metric nor have the same direction i.e higher value of an indicator does not reflect the better performance. To solve this issue, a min-max normalisation method was used which re-1 scales the base indicators on a scale ranging from 0 to 1. After normalisation each indicator has a value in the range of 0 to 1 with 1 being the best and 0 being the worst. To rank the cities, at factorial and characteristics level categories are calculated based on Butnariu and Avasilcai (20015)2.

[1] Picking The Winner: Measuring Urban Sustainability in India
http://www.igidr.ac.in/pdf/publication/WP-2016-021.pdf

[2] The Assessment of The Companies' Sustainable Development Performance, Anca Butnariu, , Silvia Avasilcai (2015), http://www.sciencedirect.com/science/article/pii/S2212567115004220

Annexure 4: Questionnaire Used for User Satisfaction Survey

(These five questions were part of larger data collection template)

Rate the quality of these services on the scale of 1 to 10, where 1= Very Poor and 10 = Excellent.

Q.No. C1.2 Satisfaction level with overall quality of electricity supply:

_____

Q.No. C1.1 Satisfaction level with overall quality of primary and secondary education (Class 1 to Class X):_____

Q.No. C1.3 Satisfaction level with overall quality of recreational facilities (parks, sport grounds & cinemas etc.):_____

Q.No. C1.4 Satisfaction level with overall quality of Health care facilities:_____

Q.No. C1.5.1 How happy do you feel about people from other regions settling in this city?_____

Annexure 5: User Satisfaction Survey Methodology

User Satisfaction Survey – Objective:

The user satisfaction survey was conducted through face-to-face personal interviews with the target respondents by visiting his/ her household using a structured questionnaire. The survey was conducted among citizens and their level of satisfaction was sought on various service aspects on a scale of 1 to 10 where 1 = Very Poor and 10 = Excellent.

Target respondents:

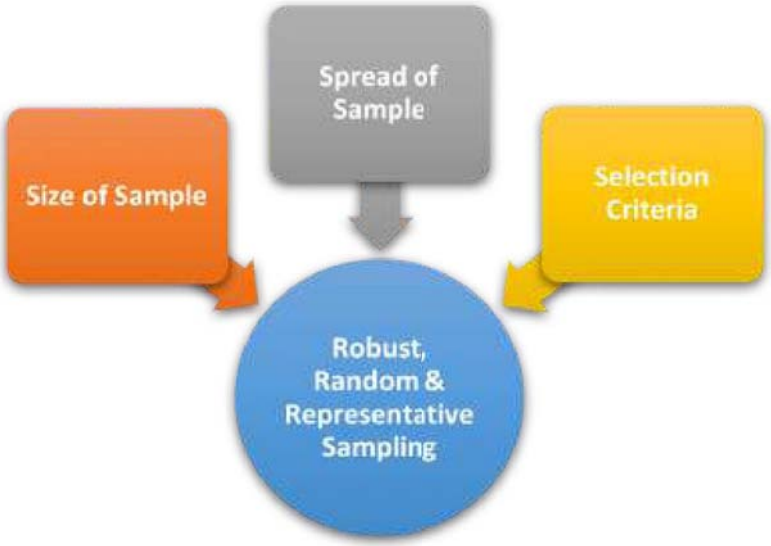
The target respondents for user satisfaction survey were persons living in the city, and were selected based on the following criteria:

- Respondent should be at least 21 years old
- Availing public facilities like health care, education, public recreational facilities etc.
- Duration of stay in city- Minimum 2 years
- Living with family (and kids)
- Coverage of Male and female respondents (Minimum 30 percent female respondents)

In each city, respondents were selected randomly from all zones (equal respondents from each of the five zones:Centre, North, South, East and West zone) and from different profile in terms of age-groups, with/without family, gender, socio-economic condition, etc.

Sampling Design:

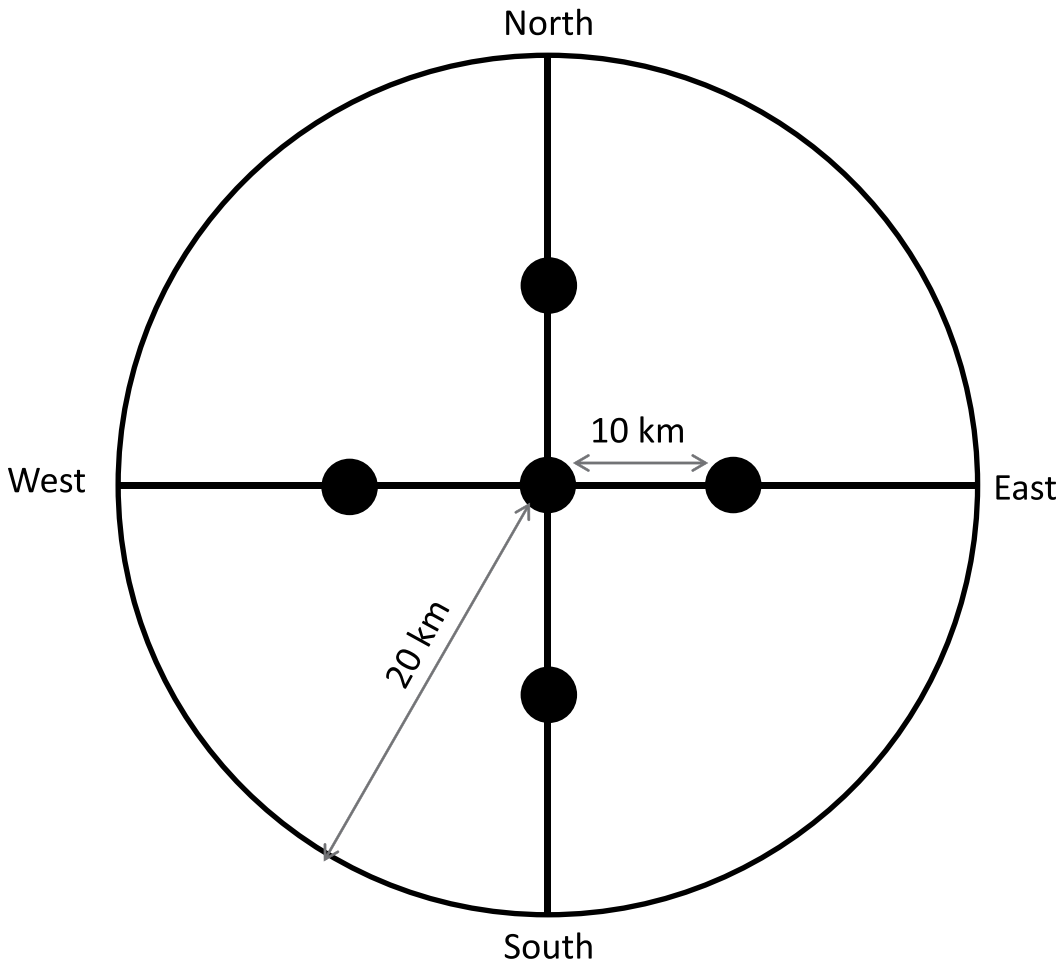
The following "3 S" sampling method was used with each of the selected cities to ensure a robust, random and comprehensive sample.



Sampling Plan:

To ensure representative coverage within the pre-selected cities, the cities were divided into 5 zones and sample were equally spread across these zones. In addition, following points were covered throughout the sampling procedure while conducting user satisfaction survey across 53 cities: Geographical Coverage During the random selection of target respondents, geographical coverage of the region was ensured. The geographic reach inside a particular city ensures that all parts of that city has been covered for representative sampling. For this purpose, a city was divided into 5 zones: Centre, North,

South, East and West. The central point of the city was identified. One investigator took interviews at this central point. Another four investigators reached to all the four directions starting from the center in such a way that they reach to the central points of the remaining four zones. For example, if a city has a radius of say; 20 km, then one investigator had taken interviews at the center of the city and four others conducted interviews in all four directions at a distance of 10 km from the center and in each of the five locations mentioned below, 20 percent of respondents were interviewed in each direction. The diagram given below is the representation of city-wise sampling methodology adopted during the survey.



Sample size:

Looking at the firm timeline and to make it representative, the following points were considered to arrive at city level sample size.

Total Population of the city – Cities were divided into Metro, Tier I, Tier II & Tier III cities based on its population. Govt. census 2011 population data was taken as a reference. Proportionate sample size, taking population as a base was done to arrive at the city-wise sample.

The survey was conducted at different timing viz. weekends, weekdays, morning and evening. It was ensured that around 30% of the female respondents were covered. The table below gives the sample size used for each of the cities covered.

S. N.	State	City	Survey Area for data collection- City Jurisdiction	Sample Size – Target	Sample size – Achieved
1	Jammu and Kashmir	Srinagar	M Corp.	60	60
2	Punjab	Ludhiana	M Corp.	70	70
3		Amritsar	M Corp.	60	66
4	Chandigarh	Chandigarh	M Corp.	60	60
5	Haryana	Faridabad	M Corp.	70	70
6	Delhi	Delhi	MCDs (all 3) + NDMC	400	421
7	Rajasthan	Jaipur	M Corp.	120	120
8		Jodhpur	M Corp.	60	60
9		Kota	M Corp.	60	60
10	Uttar Pradesh	Kanpur	M Corp.	120	121
11		Lucknow	M Corp.	120	122
12		Ghaziabad	M Corp.	80	81
13		Agra	M Corp.	70	70
14		Varanasi	M Corp.	60	65
15		Meerut	M Corp.	60	60
16		Allahabad	M Corp.	60	61
17	Bihar	Patna	M Corp.	80	80

18	West Bengal	Kolkata	M Corp.	200	200
19		Asansol	M Corp.	60	60
20	Jharkhand	Jamshedpur	Noti ed Area Council	60	60
21		Dhanbad	M Corp.	60	65
22		Ranchi	M Corp.	60	60
23	Chhattisgarh	Raipur	M Corp.	60	61
24		Durg-Bhilainagar	Bhilai Nagar M Corp.	60	60
25	Madhya Pradesh	Indore	M Corp.	90	90
26		Bhopal	M Corp.	80	80
27		Jabalpur	M Corp.	60	67
28		Gwalior	M Corp.	60	60
29	Gujarat	Ahmadabad	M Corp.	200	200
30		Surat	M Corp.	200	208
31		Vadodara	M Corp.	80	80
32		Rajkot	M Corp.	60	62
33	Maharashtra	Mumbai	M. Corp of Greater Mumbai	400	403
34		Pune	M Corp.	100	101
35		Nagpur	M Corp.	100	100
36		Nashik	M Corp.	70	74
37		Vasai Virar city	M Corp.	60	61
38		Aurangabad	M Corp.	60	60
39	Telangana	Hyderabad	M. Corp of Greater Hyderabad	300	300
40	Andhra Pradesh	Visakhapatnam	M. Corp of Greater Vishakhapatnam	80	80
41		Vijayawada	M. Corp	60	60

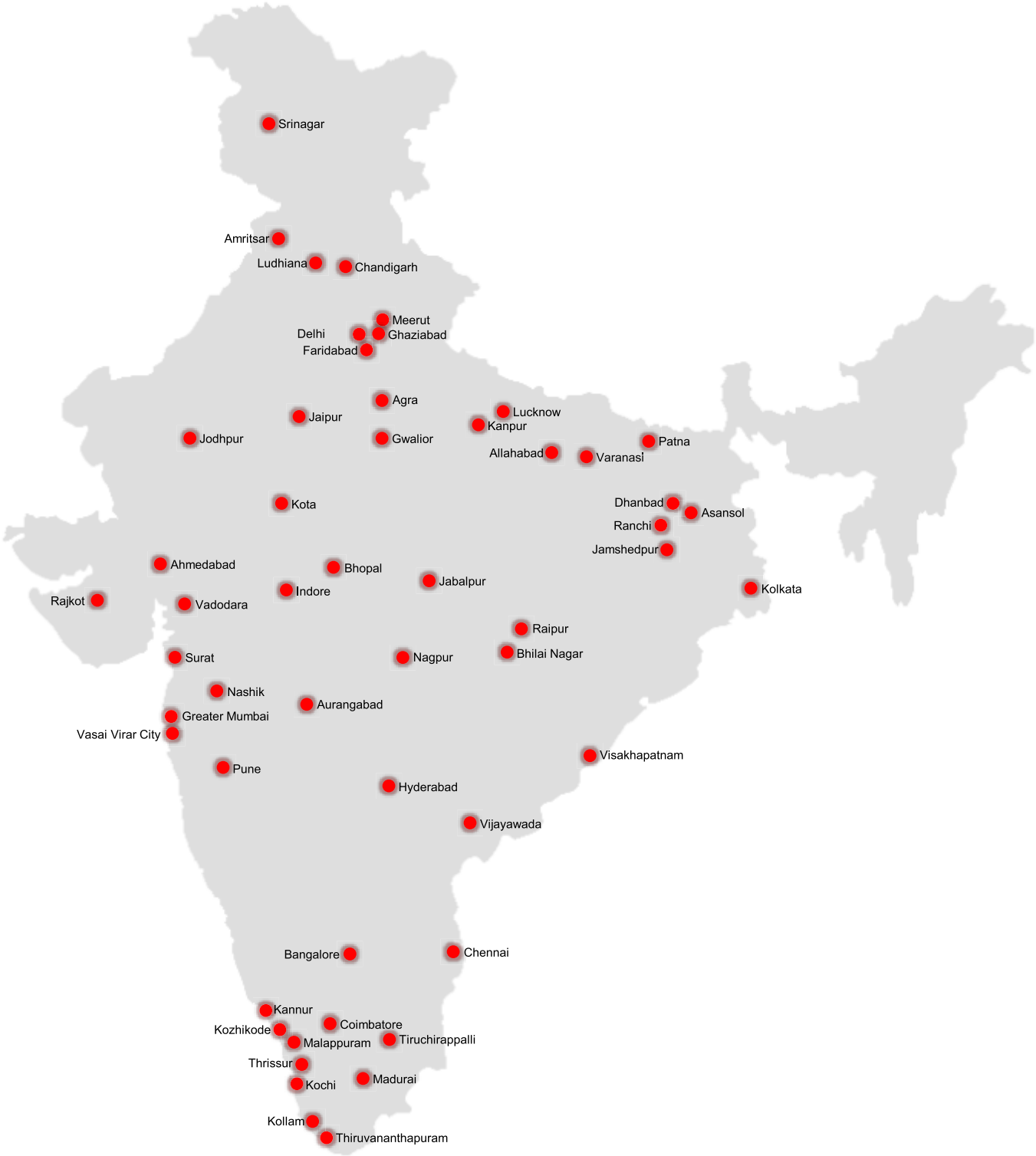
Annexure 6: Data Points and their sources

Data item	Preferred Time-line of Data	Likely Agency for Data Collection
Total number of Households having authorized (with a billing meter) electrical service	2011 or any onwards year	Electricity Board/ Municipal Corporation
Total Households with daily solid waste collection (door to door) facility run or managed by the Municipality	2011 or any onwards year	Municipal Corporation
Total Households served by potable (fit for drinking) water supply	2011 or any onwards year	Water Board/ Municipal Corporation
Total Households served by metered, billed and potable water supply	2011 or any onwards year	Water Board/ Municipal Corporation
Total number of public toilets in city operated or managed by the Municipality	2011 or any onwards year	Municipal Corporation
Total length of roads in city	2011 or any onwards year	Municipal Corporation
Total length of roads in city having covered storm water drains	2011 or any onwards year	Municipal Corporation
Total municipal personnel employed for waste collection from roads	2011 or any onwards year	Municipal Corporation
Total public museums in city	As of June 30 th, 2015	Municipal Corporation
Percentage of voters who voted in last municipal elections	2011 or any onwards year	Municipal Corporation
Total Sales Tax collected in the municipal area	2011 or any onwards year	Central Government
Total Service Tax collected in the municipal area	2011 or any onwards year	State Governments
Total new businesses registered in last 5 FY	2010-11 and following years	Registrar of Companies
Existence of an approved Master Plan for the current time (Yes/ No)	As of June 30 th, 2015	Municipal Corporation / Development Authority
Possession of GIS map of the city by city agency (Yes/ No)	As of June 30 th, 2015	Municipal Corporation
Number of town planners working in Municipality	As of June 30 th, 2015	Municipal Corporation
Existence of a disaster prevention and management plan for the city (Yes/ No)	As of June 30 th, 2015	Municipal Corporation / Regional Of ce of State Disaster Management Authority
Number of e governance initiatives by municipal corporation**	As of June 30 th, 2015	Municipal Corporation

Total capital expenditure of ULB	2011 or any onwards year	Municipal Corporation
Total revenue of ULB	2011 or any onwards year	Municipal Corporation
Total own revenue of ULB	2011 or any onwards year	Municipal Corporation
List of non-reserved seats for women in ULB	As of June 30th, 2015	Municipal Corporation
Total women councilors on non-reserved seats for women in ULB	As of June 30th, 2015	Municipal Corporation
Total sewage water generated by city	2011 or any onwards year	Municipal Corporation
Total sewage water recycled by city	2011 or any onwards year	Municipal Corporation
Total industry affluent generated by city	2011 or any onwards year	Municipal Corporation
Total industry affluent recycled by city	2011 or any onwards year	Municipal Corporation
Total solid waste generated by city	2011 or any onwards year	Municipal Corporation
Total solid waste recycled by city	2011 or any onwards year	Municipal Corporation
Total Non-Motorized Transport and Public Transport modal share	2011 or any onwards year	Municipal Corporation / Development Authority
Average Trip Length for City	2011 or any onwards year	Municipal Corporation / Development Authority
Average Travel Time	2011 or any onwards year	Municipal Corporation / Development Authority
Total higher secondary schools in city	2011 or any onwards year	District Education Of cer
Number of ITIs in city	2011 or any onwards year	District Education Of cer
Average daily electric supply to Municipal Area (in KWH)	2011 or any onwards year	Electricity Board
Total electricity consumed by the city (municipal area) (in terms of billed or revenue electricity)	2011 or any onwards year	Electricity Board
Total water supply in city	2011 or any onwards year	Water Board/ Municipal Corporation
Total water consumed by the city (in terms of billed or revenue water)	2011 or any onwards year	Water Board/ Municipal Corporation
PM 2.5 concentration level in or around the CBD / average of all city values	As of June 30th, 2015 or earlier	State Pollution Control Board
L-eq level recorded in or around the CBD/ Average of L-eq levels recorded at various stations in the city	As of June 30th, 2015 or earlier	State Pollution Control Board

* Number of e governance initiatives by municipal corporation based on following:

1. E Tendering
2. CCTV based surveillance
3. Automated parking system
4. Property tax automation – bill payment and bill generation
5. Online bill payment
6. Customer call centre
7. Grievance redressal mechanism
8. Online birth and death certificate
9. SMS-based vaccination alert
10. Digitisation of maps & building plans
11. Biometric attendance system
12. Mobile-based monitoring of solid waste management


Srinagar
Amritsar
Ludhiana
Chandigarh
Meerut
Delhi
Ghaziabad
Faridabad
Agra
Jaipur
Lucknow
Kanpur
Jodhpur
Gwalior
Patna
Allahabad
Varanasi
Kota
Dhanbad
Asansol
Ranchi
Jamshedpur
Ahmedabad
Bhopal
Jabalpur
Kolkata
Rajkot
Indore
Vadodara
Raipur
Surat
Nagpur
Bhilai Nagar
Nashik
Aurangabad
Greater Mumbai
Vasai Virar City
Visakhapatnam
Pune
Hyderabad
Vijayawada
Bangalore
Chennai
Kannur
Kozhikode
Coimbatore
Malappuram
Tiruchirappalli
Thrissur
Kochi
Madurai
Kollam
Thiruvananthapuram

"Section B of the report presents individual City Profiles with the score against characteristics and their factors."

Agra

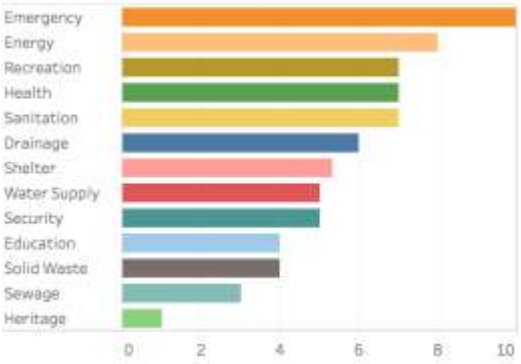
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	145	172.3	320
Living:	72.3	77.5	130
Economy:	16.8	27	50
Governance :	12	14.5	50
People:	15.1	25.3	40
Environment :	8.3	7.8	20
Mobility :	20.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

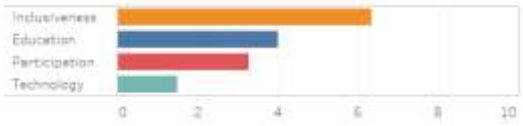
Population (Census 2011)
MC + OG: 15,74,542
U.A: 17,46,467

Performance within Characteristics

Living

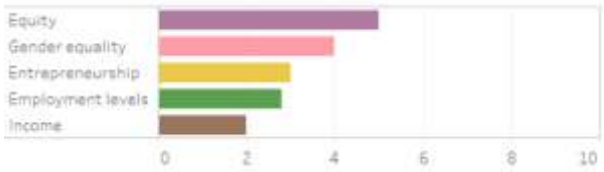


People

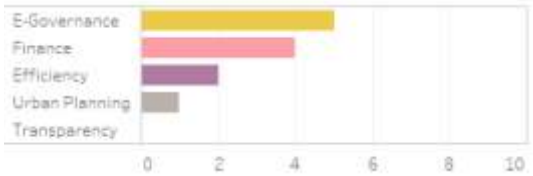


Environment

Economy



Governance



Mobility

Missing Data Points:

Living: 0
Economy: 1
Environment: 0
Governance: 0
People: 1
Mobility: 0

Strength:

Percentage of City households with electricity access (95.7)

Share of Green modes of Transport (58%)

Weakness:

Percentage of marginalised households (50.25)

Average annual registration of businesses per 100,000 population (28.62)

Ahmedabad

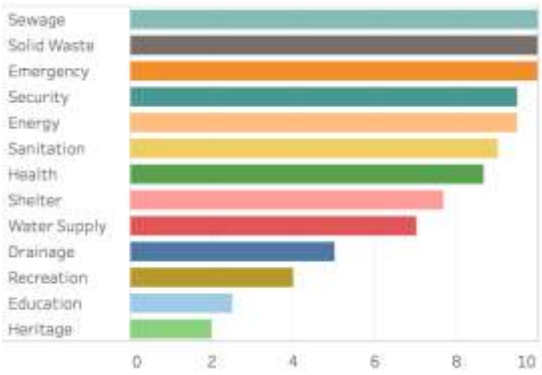
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	191.7	172.3	320
Living:	94.8	77.5	130
Economy:	32	27	50
Governance :	9.7	14.5	50
People:	22.4	25.3	40
Environment :	6.3	7.8	20
Mobility :	26.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

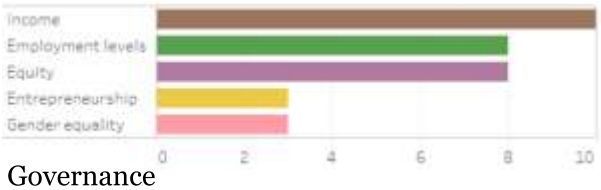
Population (Census 2011)
MC + OG: 55,70,585
U.A: 63,52,254

Performance within Characteristic

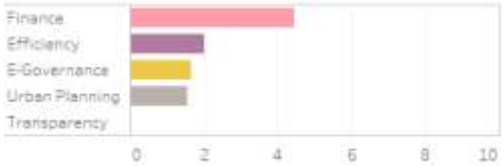
Living



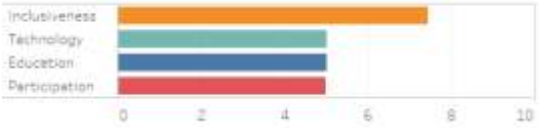
Economy



Governance

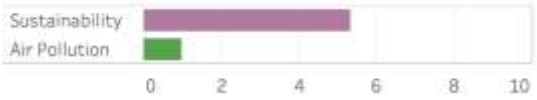


People



Mobility

Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 4
People: 1
Mobility: 0

Strength:

Share of green modes of transport (70%)

Percentage of city population with regular solid waste collection (100)

Weakness:

Number of certified town planners working in ULB per 100,000 population (0.20)

Average annual PM 2.5 levels (100.1)

Allahabad

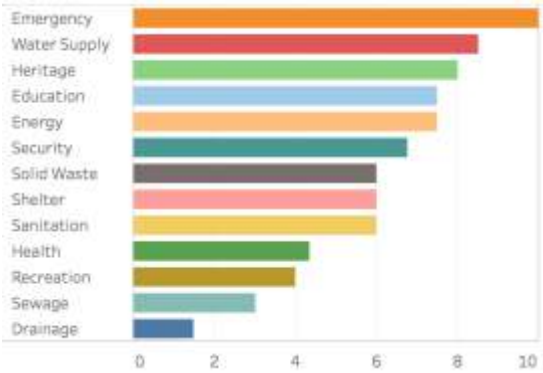
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	153.5	172.3	320
Living:	79.1	77.5	130
Economy:	16.8	27	50
Governance :	14.4	14.5	50
People:	22.5	25.3	40
Environment :	7.3	7.8	20
Mobility :	13.4	19.3	30

Population (Census 2011)
MC + OG: 11,17,094
U.A: 12,16,719

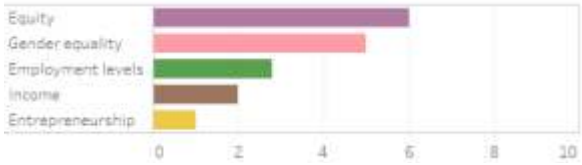
* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Performance within Characteristic

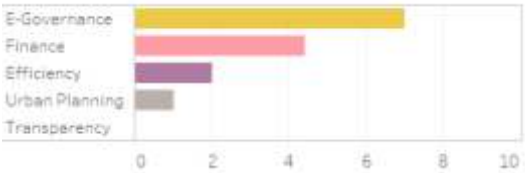
Living



Economy

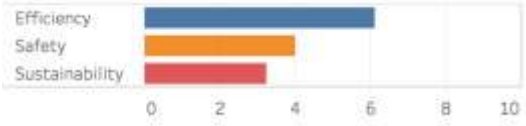


Governance

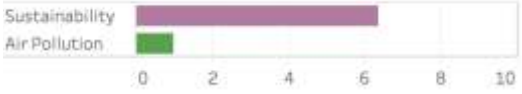


People

Mobility



Environment



Missing Data Points:

Living: 0
Economy: 1
Environment: 0
Governance: 3
People: 0
Mobility: 2

Strength:

Number of persons with graduate degree per 100,000 population (20,954.57)

Water supply per capita per day (226 ltrs)

Weakness:

Average annual P M 2.5 levels (169.72)

Average annual registration of business per 100,000 population (15.28)

Amritsar

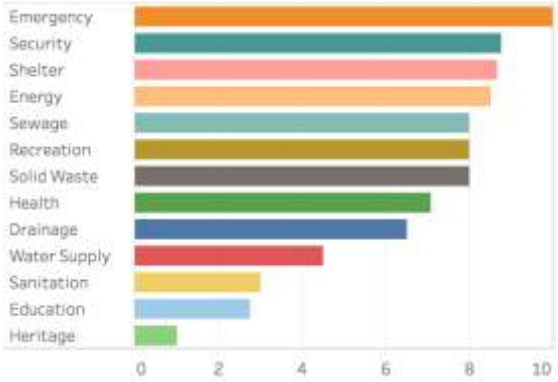
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	172.3	172.3	320
Living:	84.7	77.5	130
Economy:	22.8	27	50
Governance :	14.7	14.5	50
People:	24.9	25.3	40
Environment :	2.2	7.8	20
Mobility :	23	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 11,32,761
U.A: 11,83,705

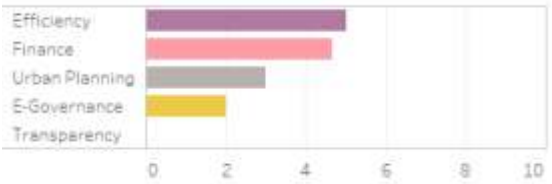
Performance within Characteristic

Living

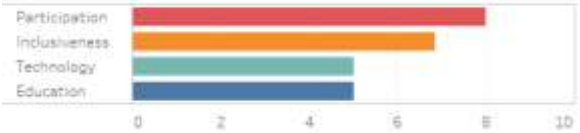


Economy

Governance



People



Mobility

Environment

Missing Data Points:

Living: 1
Economy: 1
Environment: 2
Governance: 0
People: 0
Mobility: 0

Strength:

Physical crime incidence per 100,000 population (19.35)

Road accident deaths per 100,000 population (9.8)

Weakness:

Average annual PM 2.5 levels (108.15)

Average annual registrations of businesses per 100,000 population during last five years (8.11)

Asansol

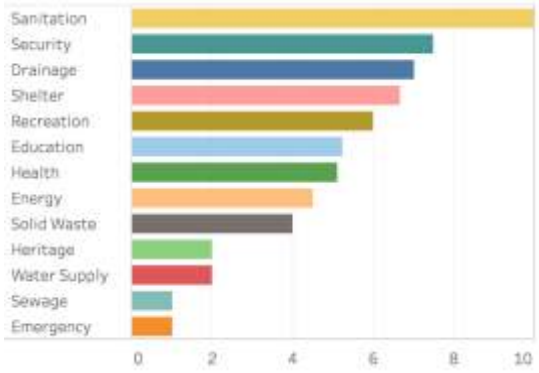
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	160.4	172.3	320
Living:	62	77.5	130
Economy:	33.6	27	50
Governance :	23.2	14.5	50
People:	23.6	25.3	40
Environment :	7.5	7.8	20
Mobility :	10.5	19.3	30

Population (Census 2011)
MC + OG: 5,64,491
U.A: 12,43,008

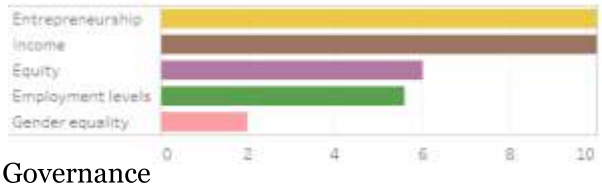
* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Performance within Characteristic:

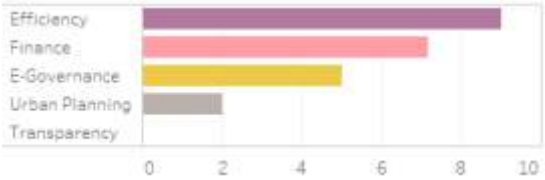
Living



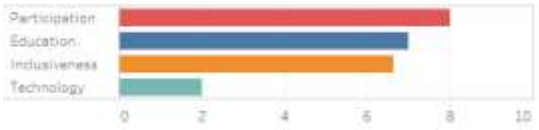
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 1
Environment: 3
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of homeless population (0.1)

Economic crime incidence per 100,0000 population (18.83)

Weakness:

Number of UGC recognised universities/ institutes of national importance per 100,000 population (0.18)

Percentage of city population served by sewage network (7.92)

Aurangabad

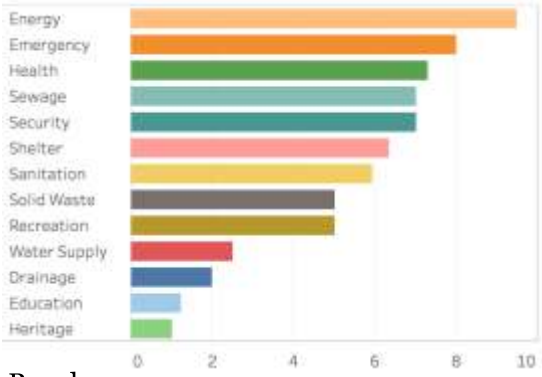
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	146.8	172.3	320
Living:	67.8	77.5	130
Economy:	25.2	27	50
Governance :	4	14.5	50
People:	21.9	25.3	40
Environment :	11.6	7.8	20
Mobility :	16.3	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 11,71,330
U.A: 11,89,376

Performance within Characteristic

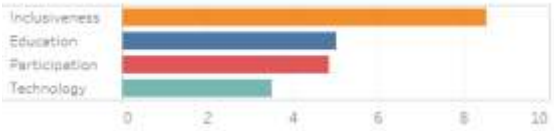
Living



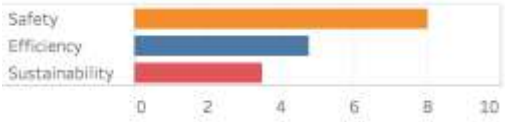
Economy

Governance

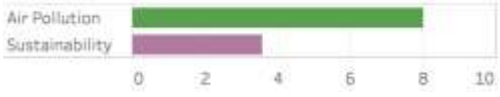
People



Mobility



Environment



Missing Data Points:

Living: 2
Economy: 1
Environment: 2
Governance: 7
People: 1
Mobility: 1

Strength:

Percentage of households with electricity access (97.93)

Percentage of women in workforce (18.19)

Weakness:

Number of UGC recognised universities/ institutes of national importance per 100,000 population (0.09)

Average annual registration of businesses per 100,000 population (18.47)

Bengaluru

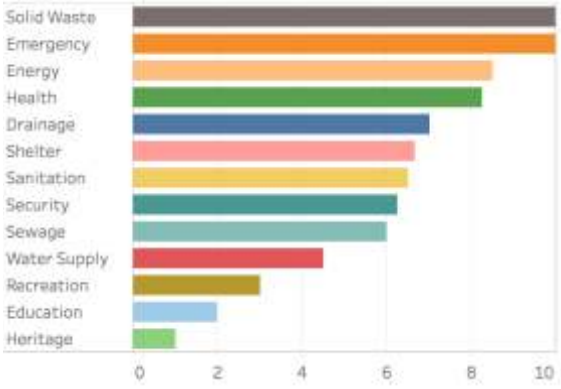
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	195	172.3	320
Living:	79.7	77.5	130
Economy:	44	27	50
Governance :	14.5	14.5	50
People:	16	25.3	40
Environment :	10.3	7.8	20
Mobility :	16	19.3	30

Population (Census 2011)
MC + OG: 84,25,970
U.A: 84,99,399

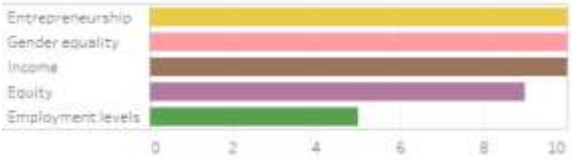
* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Performance within Characteristics

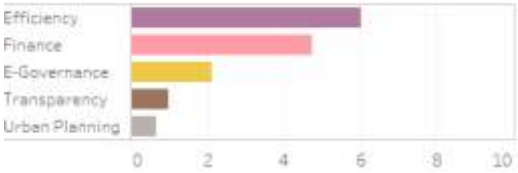
Living



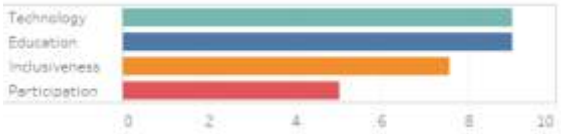
Economy



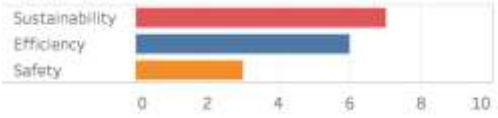
Governance



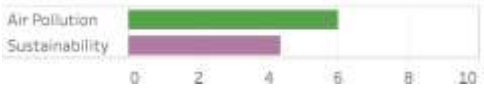
People



Mobility



Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 3
People: 0
Mobility: 0

Strength:

Number of households with electricity access (98.28)

Average annual restoration of bushinesses per 100,000 population (1302.84)

Weakness:

Percentage of non revenue water (44)

Number of certified town planners working in ULB per 100,000 population (0.09)

Bhilai

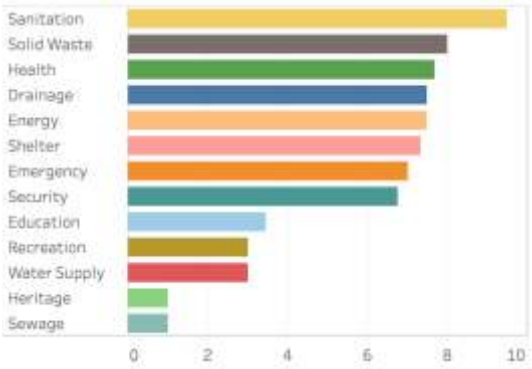
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	160.1	172.3	320
Living:	72.7	77.5	130
Economy:	22.8	27	50
Governance :	19.7	14.5	50
People:	21.4	25.3	40
Environment :	7.5	7.8	20
Mobility :	16	19.3	30

Population (Census 2011)
MC + OG: 6,25,697
U.A: 10,64,077

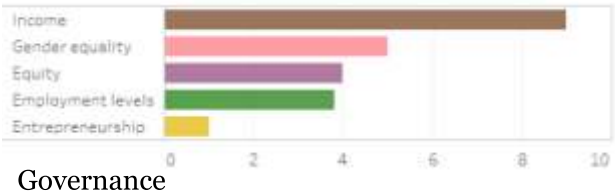
* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Performance within Characteristics

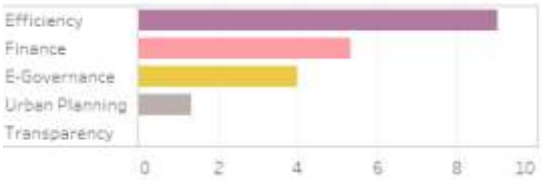
Living



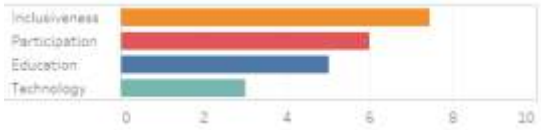
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 1
Economy: 1
Environment: 2
Governance: 2
People: 0
Mobility: 0

Strength:

Economic crime incidence per 100,000 population (9.87)

Percentage of homeless population (0.05)

Weakness:

Percentage of city population served with sewage network (7)

Average annual registration of businesses per lakh population (8.15)

Bhopal

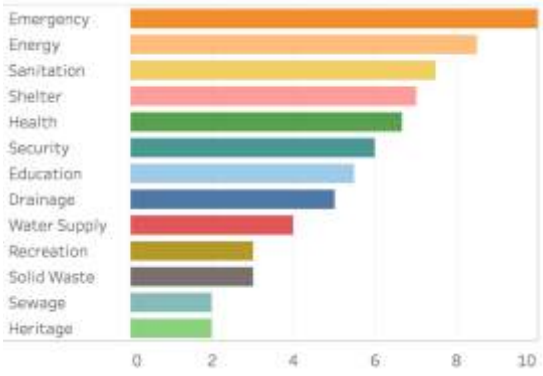
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	181.5	172.3	320
Living:	70.2	77.5	130
Economy:	28	27	50
Governance :	26.7	14.5	50
People:	25.6	25.3	40
Environment :	3	7.8	20
Mobility :	28	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

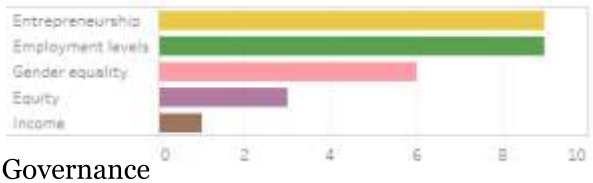
Population (Census 2011)
MC + OG: 17,95,648
U.A: 18,83,381

Performance within Characteristics

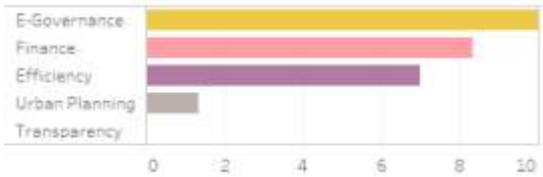
Living



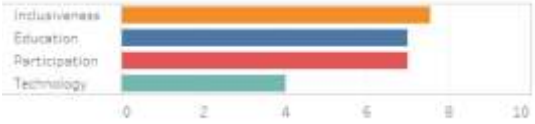
Economy



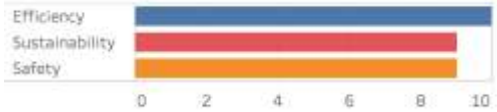
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of city households with electricity supply (97.12)

Share of green modes of transport (81%)

Weakness:

Percentage of city population served with sewage network (10)

Percentage of marginalised households (76.20)

Chandigarh

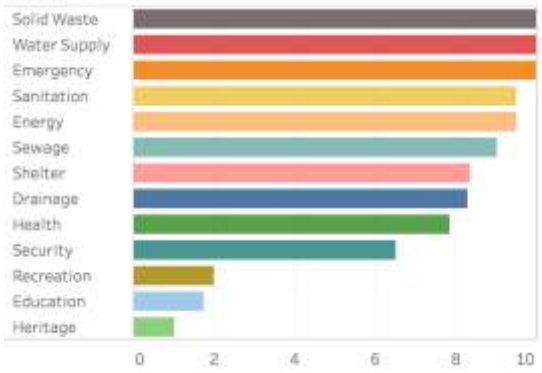
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	204.1	172.3	320
Living:	93.7	77.5	130
Economy:	39.6	27	50
Governance :	14.2	14.5	50
People:	29.9	25.3	40
Environment :	10.7	7.8	20
Mobility :	16	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

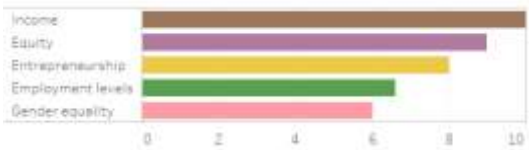
Population (Census 2011)
MC + OG: 9,60,787
U.A: 10,25,682

Performance within Characteristics

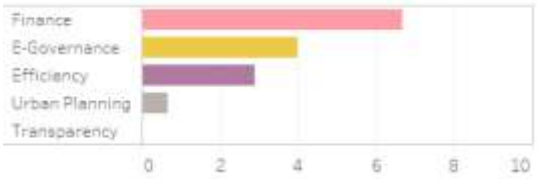
Living



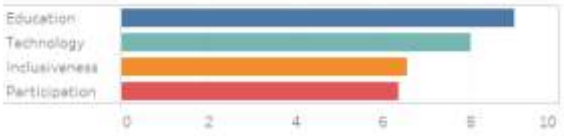
Economy



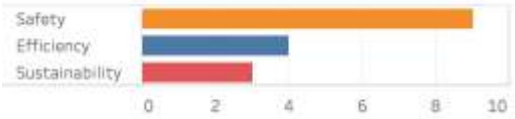
Governance



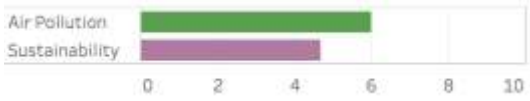
People



Mobility



Environment



Missing Data Points:

Living: 2
Economy: 1
Environment: 1
Governance: 1
People: 1
Mobility: 0

Strength:

GDP per capita (3871.32$)

Percentage of city population with portable water supply connection (100)

Weakness:

Share of green modes of transport (22.36%)

Personal crime incidence per 100,000 population (137.57)

Chennai

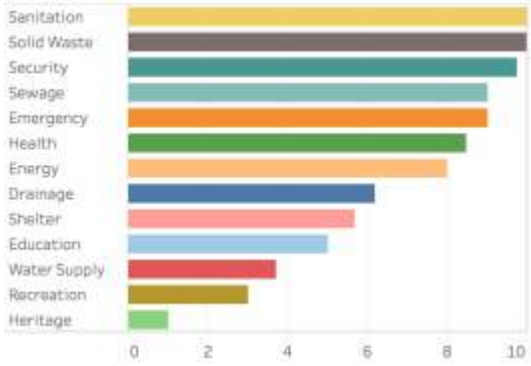
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	223.1	172.3	320
Living:	88.8	77.5	130
Economy:	43	27	50
Governance :	22.4	14.5	50
People:	32.6	25.3	40
Environment :	13.3	7.8	20
Mobility :	23	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

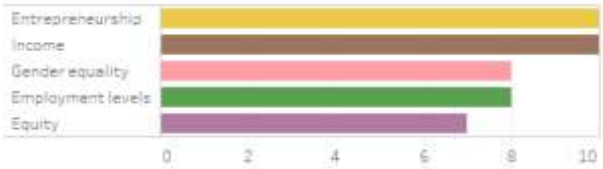
Population (Census 2011)
MC + OG: 46,81,087
U.A: 86,96,010

Performance within Characteristic

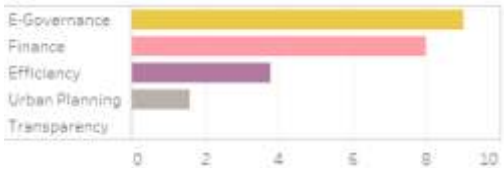
Living



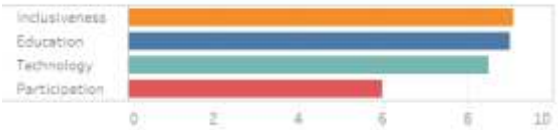
Economy



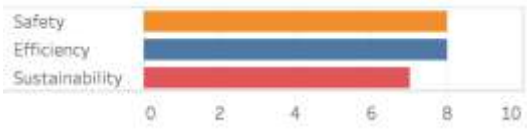
Governance



People



Mobility



Environment

Missing Data Points:

Living: 3
Economy: 0
Environment: 1
Governance: 2
People: 0
Mobility: 0

Strength:

Percentage of city population with regular solid waste collection (100)

GDP per capita (4922.56$)

Weakness:

Percentage of household using renewable energy as power source (0.026)

Water supply per capita per day (58 ltrs)

Coimbatore

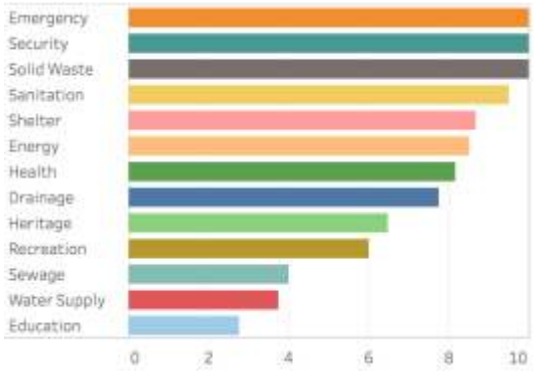
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	219.4	172.3	320
Living:	95.5	77.5	130
Economy:	38.4	27	50
Governance :	25.5	14.5	50
People:	33	25.3	40
Environment :	11	7.8	20
Mobility :	16	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 10,61,447
U.A: 21,51,466

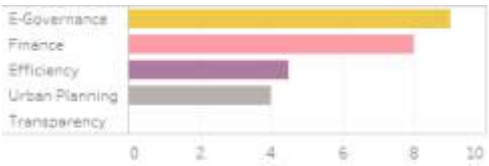
Performance within Characteristics

Living

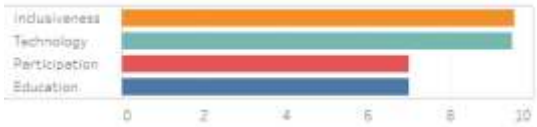


Economy

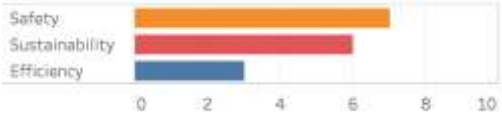
Governance



People



Mobility



Environment

Missing Data Points:

Living: 4
Economy: 1
Environment: 2
Governance: 0
People: 0
Mobility: 0

Strength:

Physical crime incidence per 100,000 population (3.9)

Sex ratio (99.7)

Weakness:

Water supply per capita per day (58 ltrs)

Percentage of city population served by sewage network (32.15)

Delhi

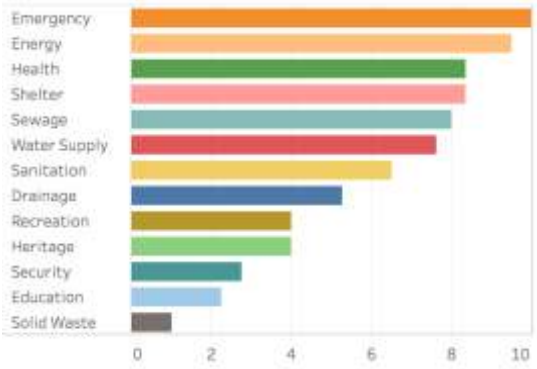
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	186.3	172.3	320
Living:	77.6	77.5	130
Economy:	36	27	50
Governance :	11.4	14.5	50
People:	29.9	25.3	40
Environment :	4.4	7.8	20
Mobility :	27	19.3	30

Population (Census 2011)
MC + OG: 1,34,82,997
U.A: 1,63,14,838

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

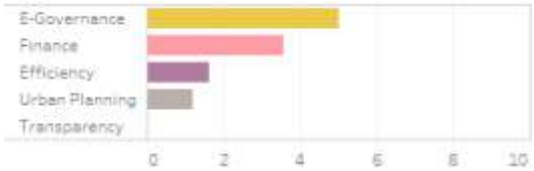
Performance within Characteristics

Living

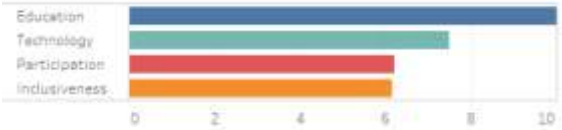


Economy

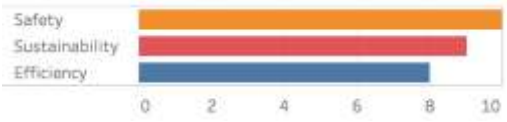
Governance



People



Mobility



Environment

Missing Data Points:

Living: 3
Economy: 0
Environment: 1
Governance: 4
People: 1
Mobility: 0

Strength:

Percentage of city households with electricity access (99.33),

Share of green modes of Transport (81%)

Weakness:

Personal crime incidence per 100,000 population (531.38)

Average annual PM 2.5 level (122.1)

Dhanbad

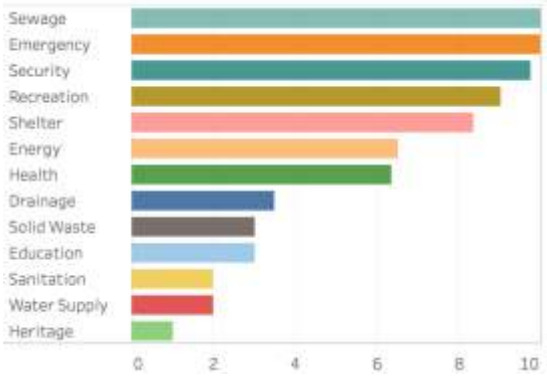
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	136.2	172.3	320
Living:	74.4	77.5	130
Economy:	14.4	27	50
Governance :	15.8	14.5	50
People:	15.3	25.3	40
Environment :	5.5	7.8	20
Mobility :	10.8	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

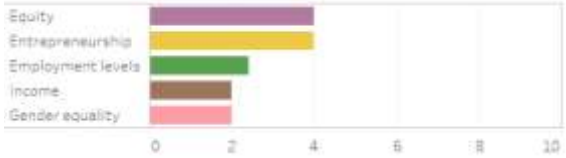
Population (Census 2011)
MC + OG: 11,61,561
U.A: 11,95,298

Performance within Characteristics

Living



Economy



Governance

People

Mobility

Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 1
Governance: 0
People: 0
Mobility: 1

Strength:

Physical crime incidence per 100,000 population (7.36)

Percentage of homeless population (0.06)

Weakness:

Percentage of non revenue water (40)

Percentage of marginalised households (69.3)

Faridabad

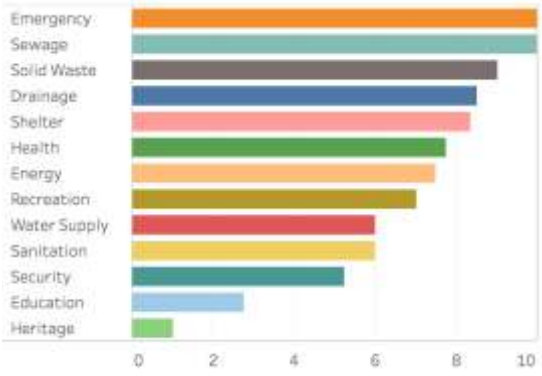
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	174.1	172.3	320
Living:	89.1	77.5	130
Economy:	15.4	27	50
Governance :	18.3	14.5	50
People:	25.8	25.3	40
Environment :	6	7.8	20
Mobility :	19.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

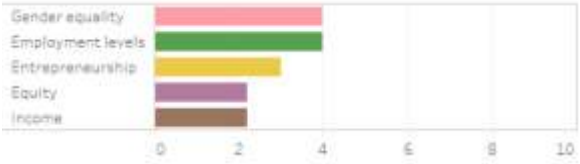
Population (Census 2011)
MC + OG: 14,04,653
U.A: 14,04,653

Performance within Characteristics

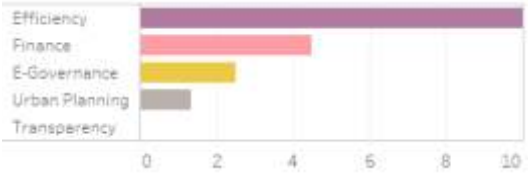
Living



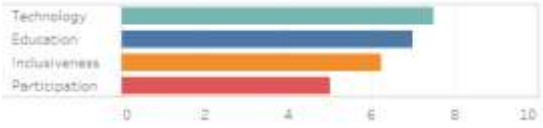
Economy



Governance

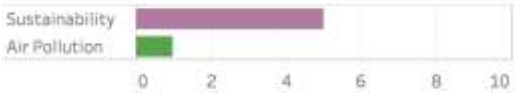


People



Mobility

Environment



Missing Data Points:

Living: 1
Economy: 2
Environment: 0
Governance: 3
People: 0
Mobility: 0

Strength:

Percentage of city population with portable water supply service (90)

Share of green modes of transport (47%)

Weakness:

Percentage of non revenue water (65)

Average annual PM 2.5 level (98.24)

Ghaziabad

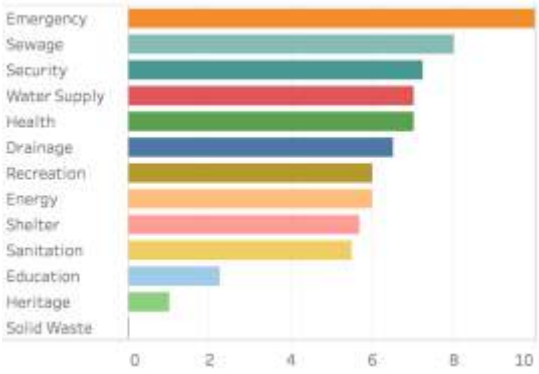
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	163.2	172.3	320
Living:	72.2	77.5	130
Economy:	24	27	50
Governance :	10	14.5	50
People:	30	25.3	40
Environment :	10	7.8	20
Mobility :	17	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

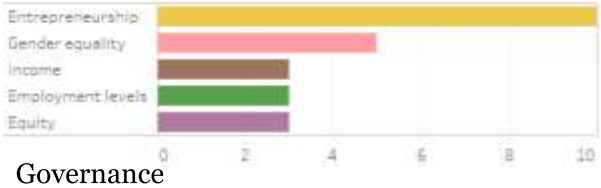
Population (Census 2011)
MC + OG: 16,48,643
U.A: 23,58,525

Performance within Characteristics

Living



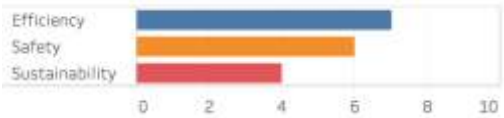
Economy



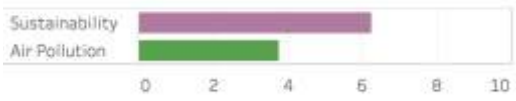
Governance

People

Mobility



Environment



Missing Data Points:

Living: 0
Economy: 3
Environment: 2
Governance: 2
People: 1
Mobility: 2

Strength:

Average annual registration of businesses per 100,000 population (103.08)

Percentage of non revenue water (18)

Weakness:

Percentage of road network with covered storm water drainage (30)

Number of public toilets per 100,000 population (2)

Greater Mumbai

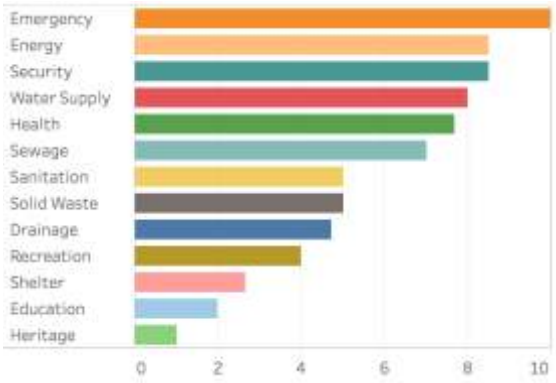
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	194.6	172.3	320
Living:	74.1	77.5	130
Economy:	41	27	50
Governance :	18.2	14.5	50
People:	24.8	25.3	40
Environment :	10	7.8	20
Mobility :	26.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

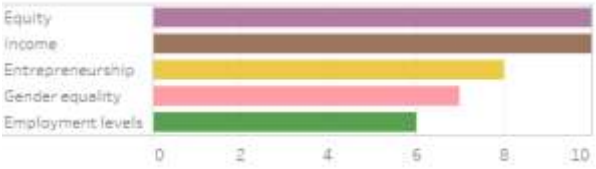
Population (Census 2011)
MC + OG: 1,24,78,447
U.A: 1,84,14,288

Performance within Characteristics

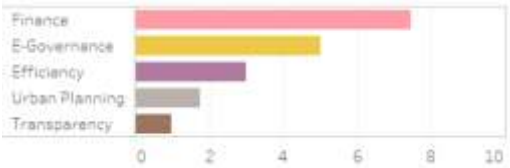
Living



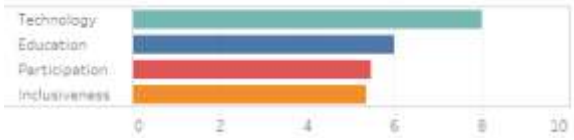
Economy



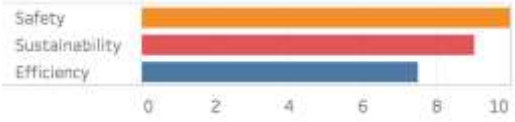
Governance



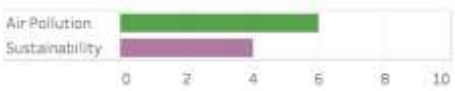
People



Mobility



Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 2
People: 1
Mobility: 0

Strength:

Share of green modes of transport (85%)

Percentage of city population with portable portable water supply service (100)

Weakness:

Percentage of road network with covered storm water drainage (38)

Percentage of city population living in slums (41.84)

Gwalior

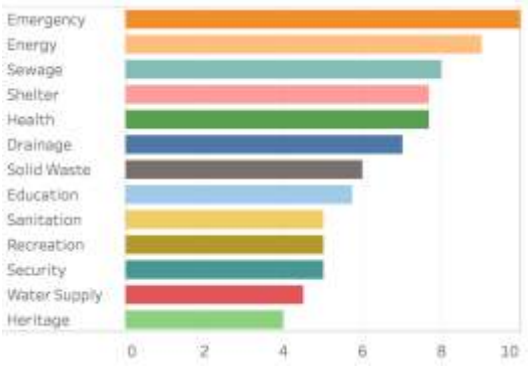
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	154.3	172.3	320
Living:	84.6	77.5	130
Economy:	20.4	27	50
Governance :	7.1	14.5	50
People:	20.1	25.3	40
Environment :	6	7.8	20
Mobility :	16.2	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

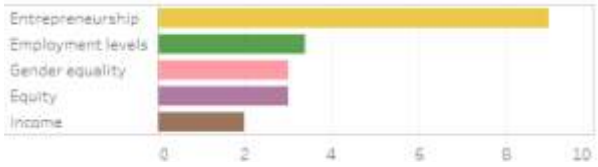
Population (Census 2011)
MC + OG: 10,53,505
U.A: 11,01,981

Performance within Characteristics

Living

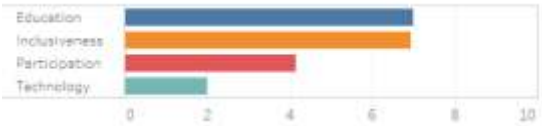


Economy

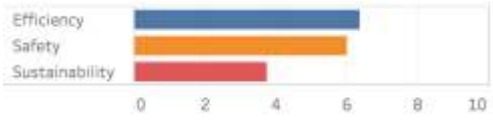


Governance

People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 0
Governance: 6
People: 1
Mobility: 2

Strength:

Percentage of city households with electricity supply (97.4)

Average annual registration of businesses per 100,000 population (62.86)

Weakness:

Percentage of non revenue water (40)

Average annual PM 2.5 level (176.14)

Hyderabad

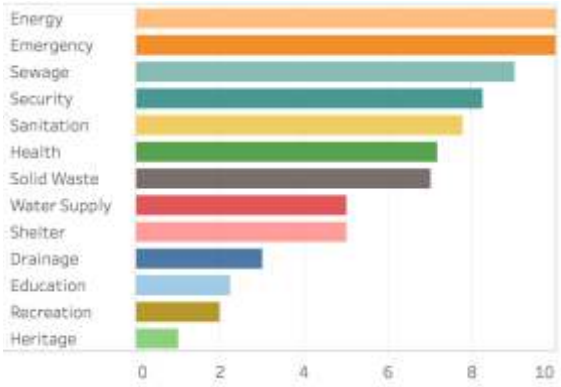
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	195.6	172.3	320
Living:	77.5	77.5	130
Economy:	33	27	50
Governance :	18.8	14.5	50
People:	30	25.3	40
Environment :	14.8	7.8	20
Mobility :	21.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

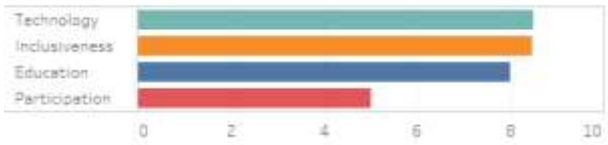
Population (Census 2011)
MC + OG: 68,09,970
U.A: 77,49,334

Performance within Characteristics

Living

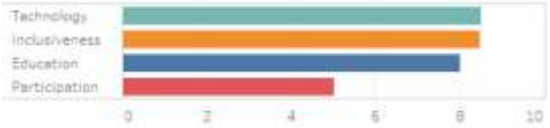


Economy



Governance

People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 0
Environment: 1
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of city households with electricity supply (98.46)

Road accident deaths per 100,000 population (11.09)

Weakness:

Percentage of non revenue water (38)

Percentage of road network with covered storm water drainage (40)

Indore

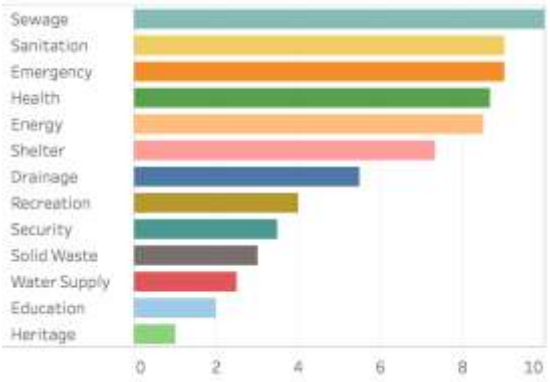
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	182.3	172.3	320
Living:	74	77.5	130
Economy:	31	27	50
Governance :	22.7	14.5	50
People:	26.1	25.3	40
Environment :	6	7.8	20
Mobility :	22.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 19,60,631
U.A: 21,67,564

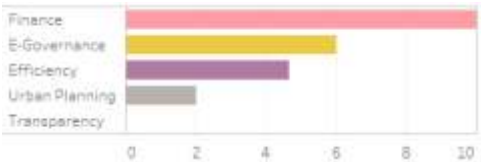
Performance within Characteristics

Living

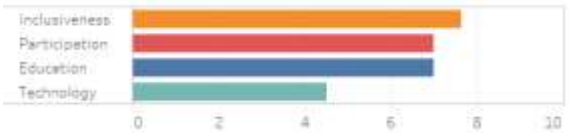


Economy

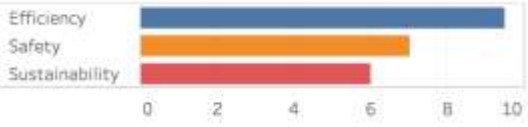
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 1
Governance: 1
People: 0
Mobility: 0

Strength:

Percentage of city households with electricity access (98.48)

Share of green modes of Transport (57%)

Weakness:

Percentage of city population with regular solid waste collection (30)

Personal crime incidence per 100,000 population (350.09)

Jabalpur

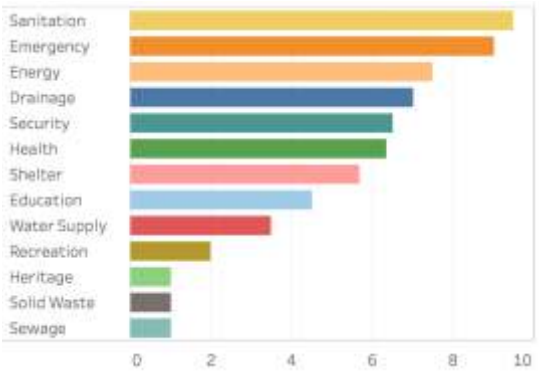
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	144	172.3	320
Living:	64.5	77.5	130
Economy:	16.8	27	50
Governance :	21.5	14.5	50
People:	24.9	25.3	40
Environment :	1.5	7.8	20
Mobility :	14.8	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

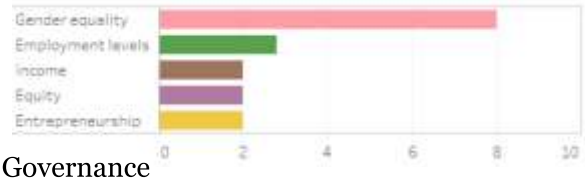
Population (Census 2011)
MC + OG: 10,54,336
U.A: 12,67,564

Performance within Characteristics

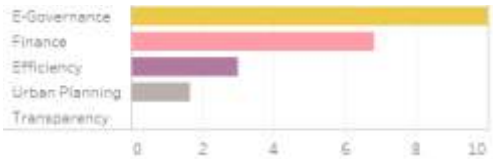
Living



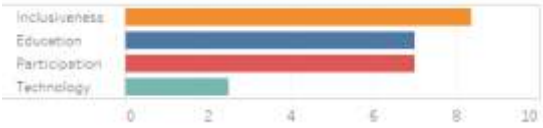
Economy



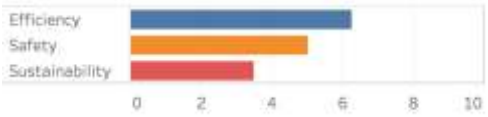
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 3
Governance: 0
People: 0
Mobility: 2

Strength:

Economic crime incidence per 100,000 population (7.57)

Number of e- governance initiatives provided by municipal corporation (12)

Weakness:

Percentage of city population served by sewage network (9.18)

Percentage of marginalised household (80.20)

Jaipur

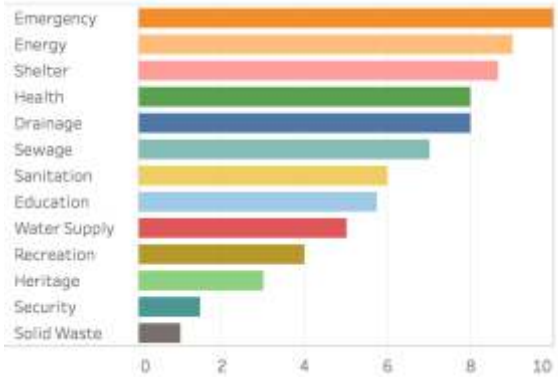
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	168.1	172.3	320
Living:	79.6	77.5	130
Economy:	23	27	50
Governance :	15.2	14.5	50
People:	26.8	25.3	40
Environment :	2.7	7.8	20
Mobility :	23.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

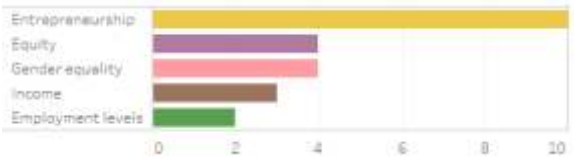
Population (Census 2011)
MC + OG: 30,73,350

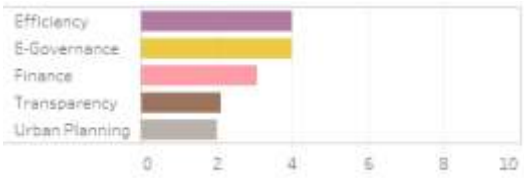
Performance within Characteristics

Living

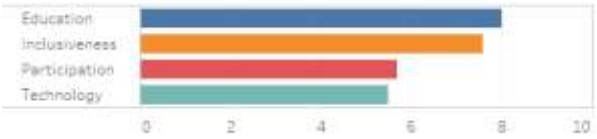


Economy

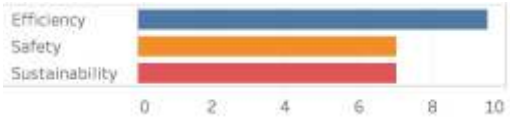




People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 0
Governance: 3
People: 1
Mobility: 0

Strength:

Percentage of city households with electricity access (97.82)

Average annual registration of businesses per 100,000 population (168.94)

Weakness:

Economic crime incidence per 100,000 population (161.19)

Unemployment rate (44.5)

Jamshedpur

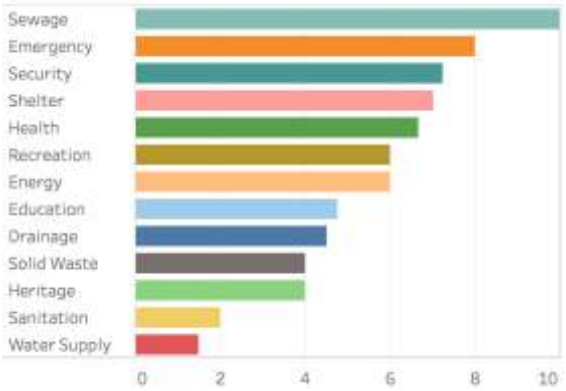
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	149.7	172.3	320
Living:	71.7	77.5	130
Economy:	25.2	27	50
Governance :	4	14.5	50
People:	26.4	25.3	40
Environment :	4	7.8	20
Mobility :	18.4	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

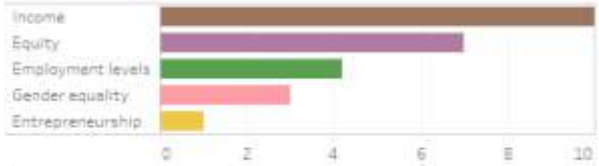
Population (Census 2011)
MC + OG: 6,29,659
U.A: 13,37,131

Performance within Characteristics

Living



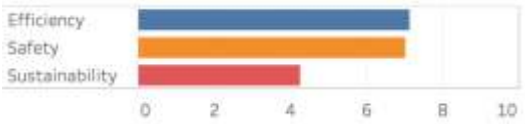
Economy



Governance

People

Mobility



Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 2
Governance: 3
People: 1
Mobility: 2

Strength:

Percentage of city population served by sewage network (90)

GDP per capita (4391.81$)

Weakness:

Number of e- governance initiatives provided by municipal corporation (3)

Average annual registration of businesses per 100,000 population (18.40)

Jodhpur

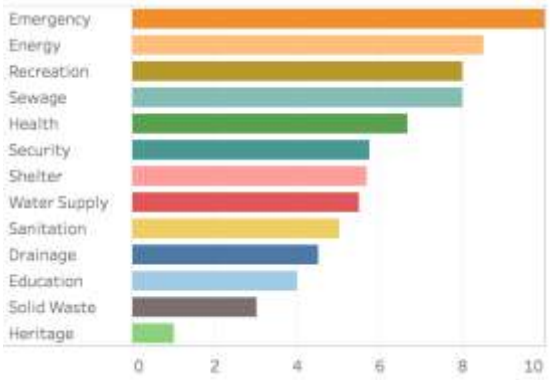
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	134.1	172.3	320
Living:	75.6	77.5	130
Economy:	12.8	27	50
Governance :	6.2	14.5	50
People:	19.2	25.3	40
Environment :	3.3	7.8	20
Mobility :	17	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

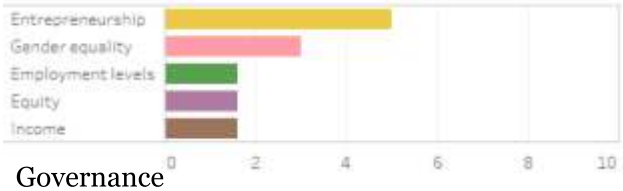
Population (Census 2011)
MC + OG: 10,33,918
U.A: 11,37,815

Performance within Characteristics

Living

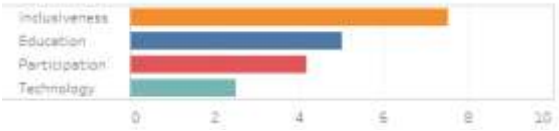


Economy



Governance

People



Mobility

Environment

Missing Data Points:

Living: 0
Economy: 3
Environment: 0
Governance: 4
People: 1
Mobility: 2

Strength:

Percentage of City households with electricity supply (96.37)

Attitude towards in-migrants (8.07)

Weakness:

Percentage of city population with regular solid waste collection (30)

Number of e- governance initiatives provided by municipal corporation (3)

Kannur

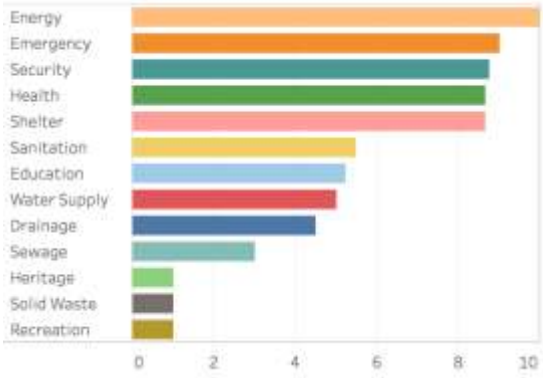
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	150.7	172.3	320
Living:	71.4	77.5	130
Economy:	37.8	27	50
Governance :	9.4	14.5	50
People:	29	25.3	40
Environment :	0.8	7.8	20
Mobility :	2.3	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

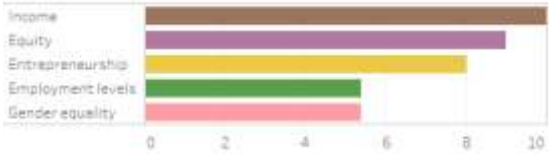
Population (Census 2011)
MC + OG: 5,68,23
U.A: 16,42,892

Performance within Characteristics

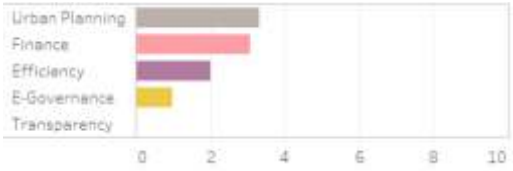
Living



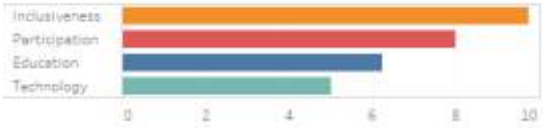
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 2
Environment: 3
Governance: 1
People: 1
Mobility: 2

Strength:

Percentage of City households with electricity access (99.20)

Attitude towards in-migrants(9.49)

Weakness:

Road accident death per 100,000 population (105.02)

Percentage of city population served by sewage network (22.20)

Kanpur

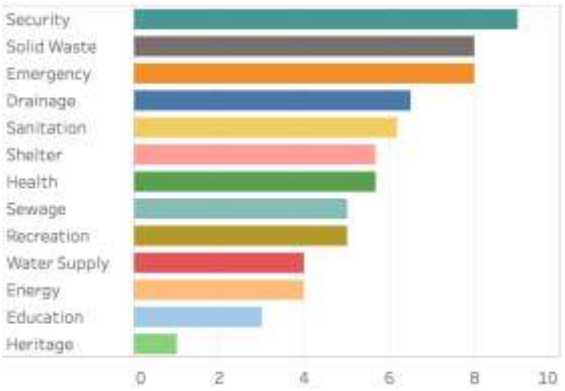
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	148.7	172.3	320
Living:	71	77.5	130
Economy:	9	27	50
Governance :	17.1	14.5	50
People:	21.8	25.3	40
Environment :	8.3	7.8	20
Mobility :	21.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

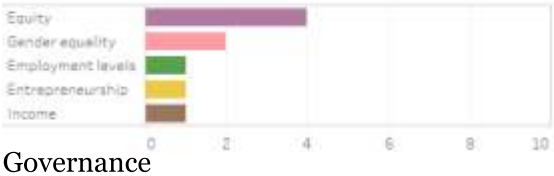
Population (Census 2011)
MC + OG: 27,67,031
U.A: 29,20,067

Performance within Characteristics

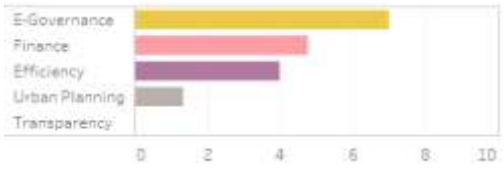
Living



Economy

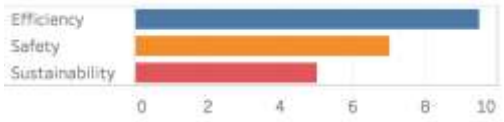


Governance



People

Mobility



Environment

Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 2
People: 0
Mobility: 0

Strength:

Percentage of city population with regular solid waste collection (82)

Share of green modes of transport (47%)

Weakness:

Percentage of household using renewable energy as power source (0.21)

Percentage of marginalised households (63.42)

Kochi

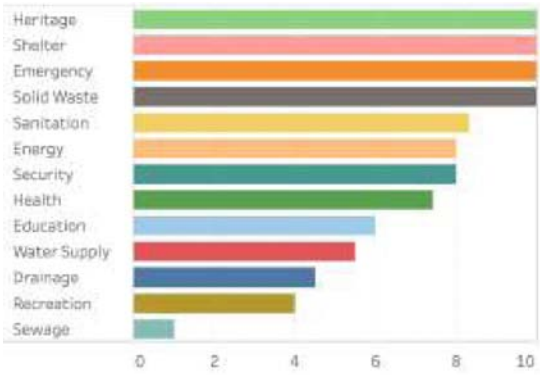
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	207.2	172.3	320
Living:	92.7	77.5	130
Economy:	38.4	27	50
Governance :	18.3	14.5	50
People:	35.5	25.3	40
Environment :	14.3	7.8	20
Mobility :	8	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

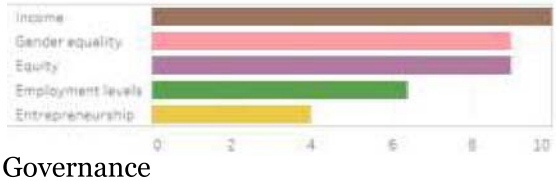
Population (Census 2011)
MC + OG: 6,01,574
U.A: 21,17,990

Performance within Characteristics

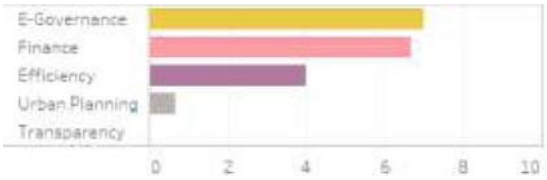
Living



Economy



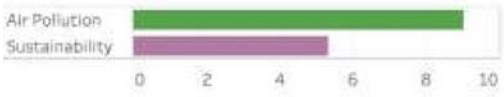
Governance



People

Mobility

Environment



Missing Data Points:

Living: 3
Economy: 1
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of City households with electricity access (99.08)

Water supply per capita per day (130 litrs)

Weakness:

Road accident deaths per 100,000 population (61

Average annual registration of business per 100,000 population (28.62)

Kolkata

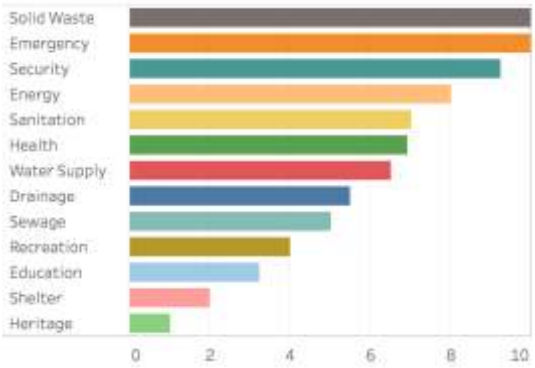
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	206.3	172.3	320
Living:	78.4	77.5	130
Economy:	36	27	50
Governance :	24.1	14.5	50
People:	28.3	25.3	40
Environment :	11	7.8	20
Mobility :	28.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

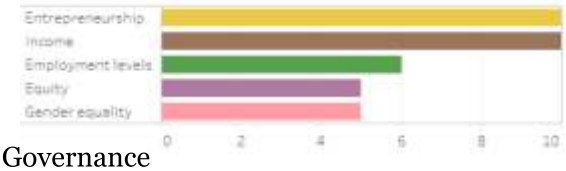
Population (Census 2011)
MC + OG: 44,86,679
U.A:1,41,12,536

Performance within Characteristic

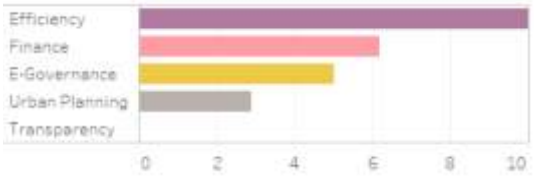
Living



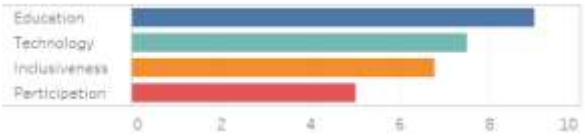
Economy



Governance

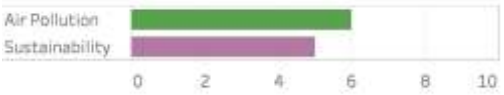


People



Mobility

Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 1
People: 0
Mobility: 0

Strength:

Water supply per capita per day (135 ltrs)

Share of Green modes of Transport (84)

Weakness:

Percentage of marginalised households (50.45)

Number of certified town planners working in ULBs per 100,000 population (0.02)

Kollam

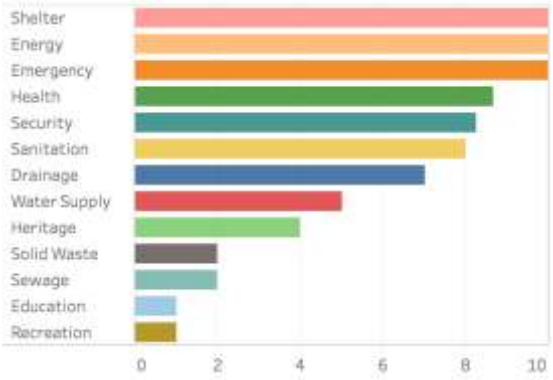
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	160.2	172.3	320
Living:	76.9	77.5	130
Economy:	16	27	50
Governance :	13.4	14.5	50
People:	29.9	25.3	40
Environment :	12.5	7.8	20
Mobility :	22.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 3,49,033
U.A: 11,10,005

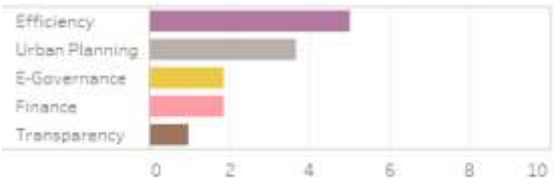
Performance within Characteristics

Living

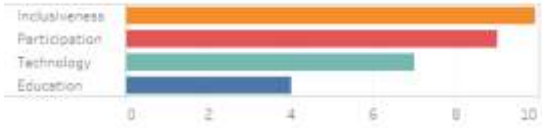


Economy

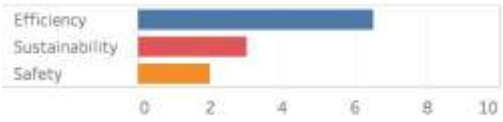
Governance



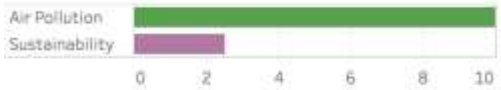
People



Mobility



Environment



Missing Data Points:

Living: 2
Economy: 3
Environment: 1
Governance: 4
People: 0
Mobility: 2

Strength:

Percentage of women in workforce (24.45)

Percentage of city household with electricity access (98.32)

Weakness:

Percentage of city population served by sewage network (15.20)

Average annual registration of businesses per 100,000 population (13.25)

Kota

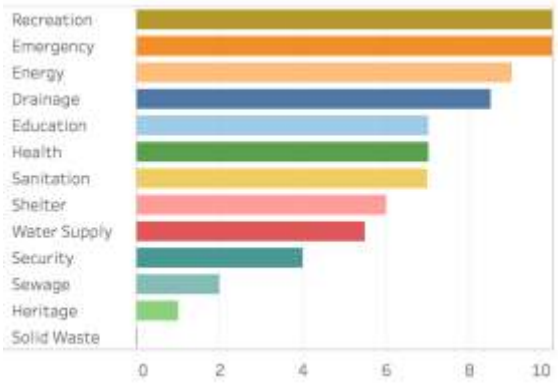
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	150.2	172.3	320
Living:	77	77.5	130
Economy:	21.6	27	50
Governance :	8.4	14.5	50
People:	17.8	25.3	40
Environment :	7.8	7.8	20
Mobility :	17.6	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

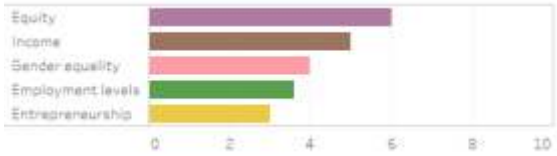
Population (Census 2011)
MC + OG: 10,01,365
U.A: 10,01,365

Performance within Characteristics

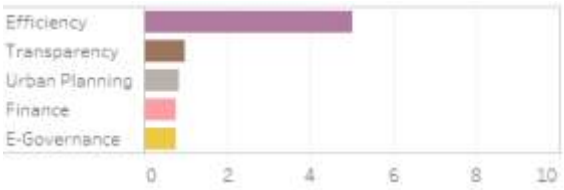
Living



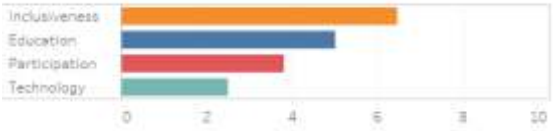
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 1
Economy: 1
Environment: 1
Governance: 6
People: 1
Mobility: 2

Strength:

Percentage of city households with electricity access (97.25)

Road accident deaths per 100,000 population (15.55)

Weakness:

Percentage of non revenue water (40)

Average annual registration of businesses per 100,000 population (29.61)

Kozhikode

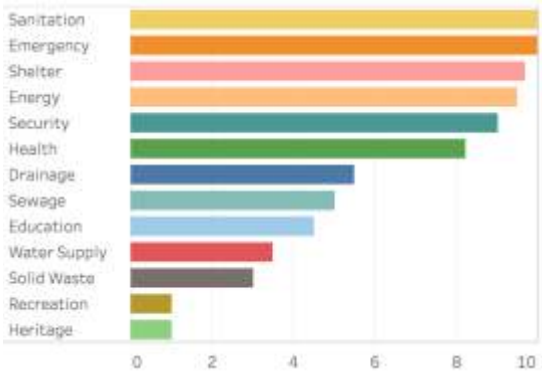
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	178.1	172.3	320
Living:	79.9	77.5	130
Economy:	30	27	50
Governance :	10.4	14.5	50
People:	32.7	25.3	40
Environment :	14.6	7.8	20
Mobility :	20.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 4,32,097
U.A: 20,30,519

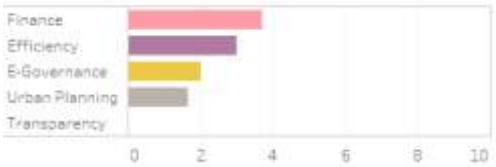
Performance within Characteristics

Living

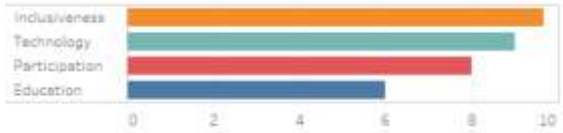


Economy

Governance



People



Mobility

Environment

Missing Data Points:

Living: 1
Economy: 1
Environment: 1
Governance: 1
People: 0
Mobility: 2

Strength:

GDP per capita (5940.24 $)

Average annual PM 2.5 levels (29.7)

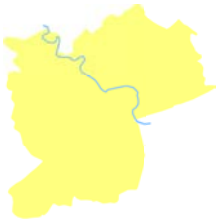
Weakness:

Percentage of city population served by sewage network (42.70)

Average annual registration of businesses per 100,000 population (18.31)

Lucknow

Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	157	172.3	320
Living:	70.6	77.5	130
Economy:	19	27	50
Governance :	9.6	14.5	50
People:	28.6	25.3	40
Environment :	5.7	7.8	20
Mobility :	23.5	19.3	30

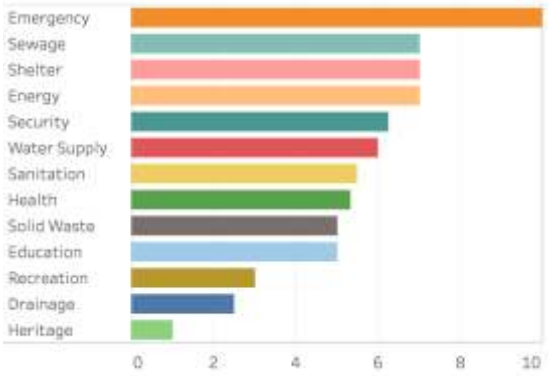


* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

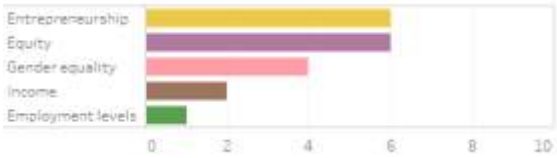
Population (Census 2011)
MC + OG: 28,15,601
U.A: 29,01,474

Performance within Characteristics

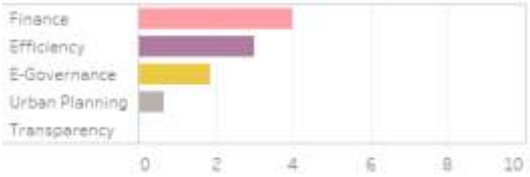
Living



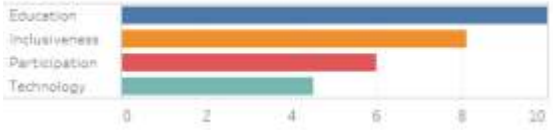
Economy



Governance

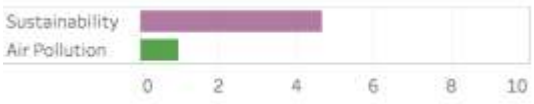


People



Mobility

Environment



Missing Data Points:

Living: 0
Economy: 0
Environment: 0
Governance: 1
People: 0
Mobility: 0

Strength:

Attitude towards in-migrants (8.2)

Share of green modes of transport (53)

Weakness:

Percentage of marginalised household (45.47)

Average annual PM 2.5 levels (112.86)

Ludhiana

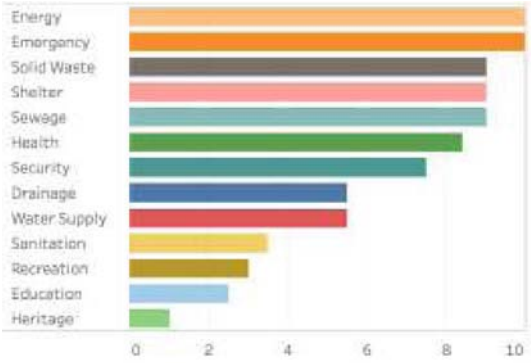
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	178.9	172.3	320
Living:	83.9	77.5	130
Economy:	26.4	27	50
Governance :	20.5	14.5	50
People:	23.9	25.3	40
Environment :	5.7	7.8	20
Mobility :	18.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

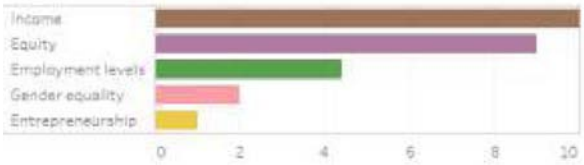
Population (Census 20
MC+OG:16,13,878
U.A: 16,13,878

Performance within Characteristics

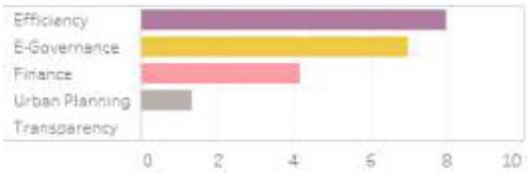
Living



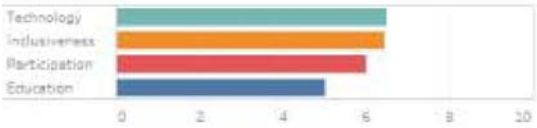
Economy



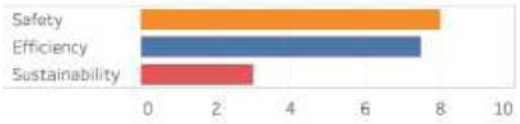
Governance



People



Mobility



Environment

Missing Data Points:

Living: 1
Economy: 1
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of city households with electricity access (98.89)

Percentage of city population served by sewage network (83.36)

Weakness:

Average annual PM2.5 levels (121.94)

Percentage of non revenue water (51)

11)

Ludhiana

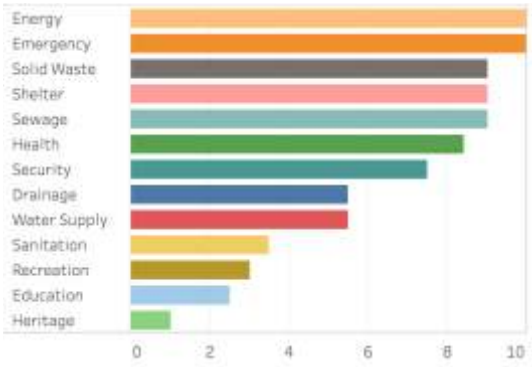
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	178.9	172.3	320
Living:	83.9	77.5	130
Economy:	26.4	27	50
Governance :	20.5	14.5	50
People:	23.9	25.3	40
Environment :	5.7	7.8	20
Mobility :	18.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

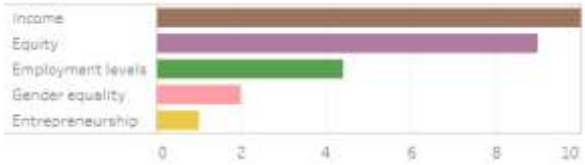
Population (Census 2011)
MC + OG: 16,13,878
U.A: 16,13,878

Performance within Characteristics

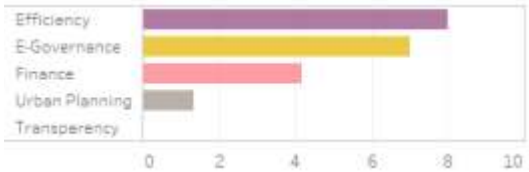
Living



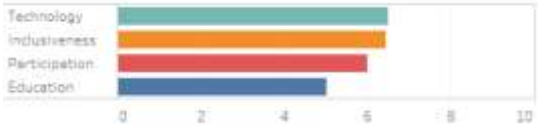
Economy



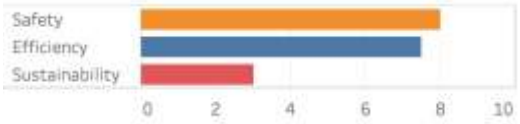
Governance



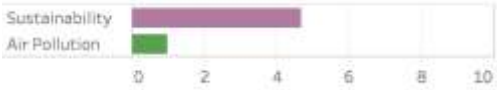
People



Mobility



Environment



Missing Data Points:

Living: 1
Economy: 1
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of city households with electricity access (98.89)

Percentage of city population served by sewage network (83.36)

Weakness:

Average annual PM 2.5 levels (121.94)

Percentage of non revenue water (51)

Malappuram

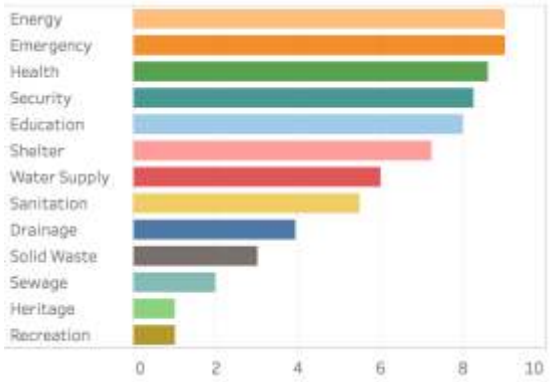
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	133.3	172.3	320
Living:	72.5	77.5	130
Economy:	17.6	27	50
Governance :	14.3	14.5	50
People:	25.3	25.3	40
Environment :	1.3	7.8	20
Mobility :	2.3	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

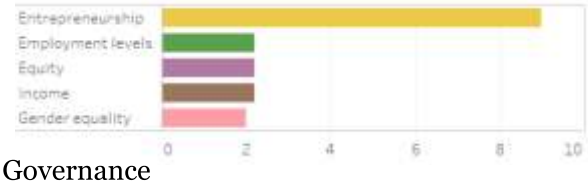
Population (Census 2011)
MC + OG: 68,127
U.A: 16,98,645

Performance within Characteristics

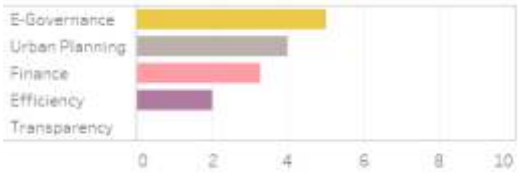
Living



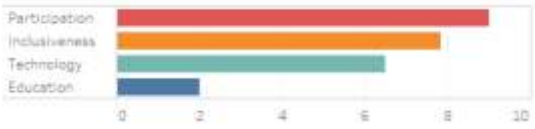
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 4
Economy: 3
Environment: 2
Governance: 1
People: 1
Mobility: 2

Strength:

Physical crime incidence per 100,000 population (1.88)

Percentage of homeless population (0.04)

Weakness:

Percentage of city population served by sewage network (19.56)

Percentage of women in workforce (12.08)

Meerut

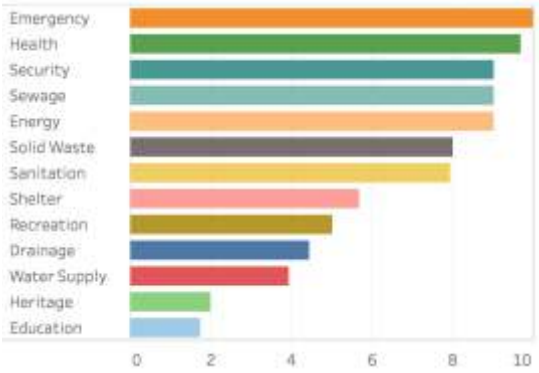
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	154	172.3	320
Living:	68.4	77.5	130
Economy:	18	27	50
Governance :	21.4	14.5	50
People:	17.6	25.3	40
Environment :	8.8	7.8	20
Mobility :	19.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

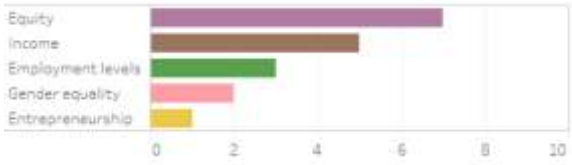
Population (Census 2011)
MC + OG: 13,09,023
U.A: 14,24,908

Performance within Characteristics

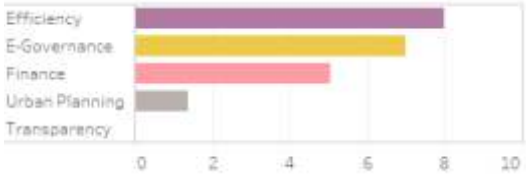
Living



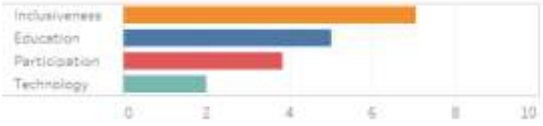
Economy



Governance

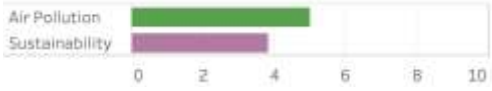


People



Mobility

Environment



Missing Data Points:

Living: 0
Economy: 1
Environment: 2
Governance: 1
People: 1
Mobility: 0

Strength:

Percentage of city households with electricity access (93.91)

Number of e governance initiatives provided by municipal corporation in the city(9)

Weakness:

Percentage of city population served by sewage network (13)

Water supply per capita per day (73 ltrs)

Nagpur

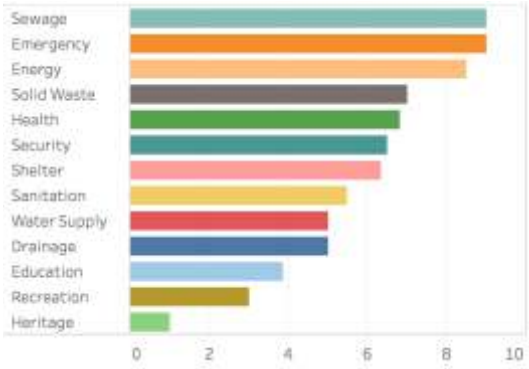
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	184.2	172.3	320
Living:	76.6	77.5	130
Economy:	28	27	50
Governance :	22	14.5	50
People:	26.1	25.3	40
Environment :	11	7.8	20
Mobility :	20.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

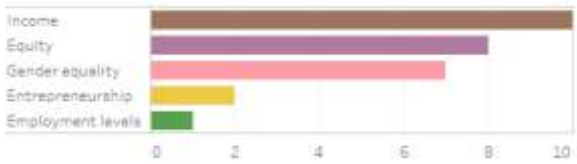
Population (Census 2011)
MC + OG: 24,05,421
U.A: 24,97,777

Performance within Characteristics

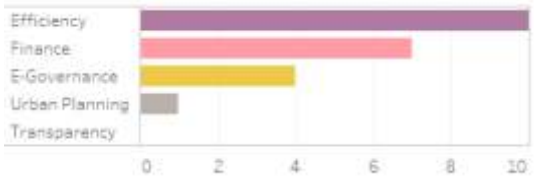
Living



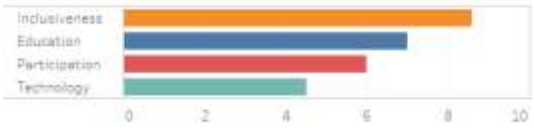
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 0
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Attitude towards in-migrants (8.18)

Road accident deaths per 100,000 population (12.87)

Weakness:

Percentage of non revenue water (64)

Number of certified town planners working in ULB per lakh population (.08)

Nashik

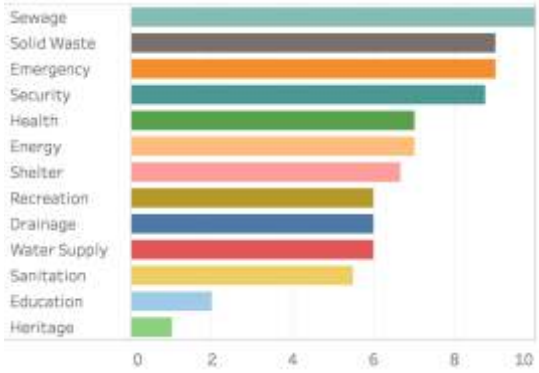
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	192.3	172.3	320
Living:	73.9	77.5	130
Economy:	35	27	50
Governance :	24.8	14.5	50
People:	121.9	25.3	40
Environment :	11.7	7.8	20
Mobility :	15	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

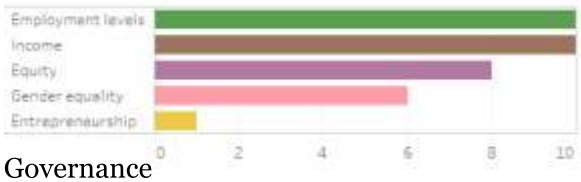
Population (Census 2011)
MC + OG: 14,86,973
U.A: 15,62,769

Performance within Characteristics

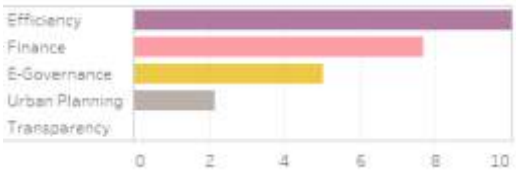
Living



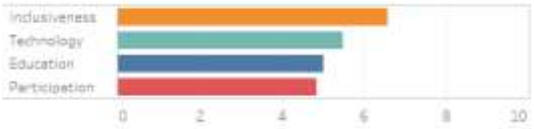
Economy



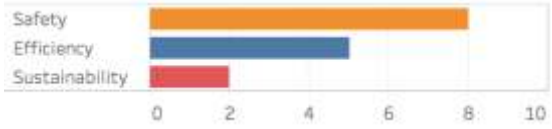
Governance



People



Mobility



Environment

Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 1
People: 1
Mobility: 0

Strength:

Percentage of crime incidence per 100,000 population (9.15)

Percentage of city population served by sewage network (95)

Weakness:

Percentage of non revenue water (65)

Share of green modes of transport (16.69)

Patna

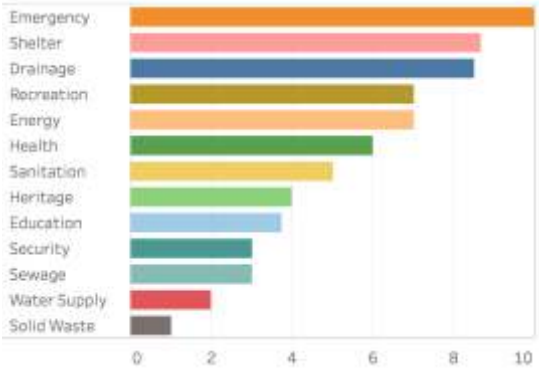
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	163.2	172.3	320
Living:	68.9	77.5	130
Economy:	27	27	50
Governance :	17.2	14.5	50
People:	22.5	25.3	40
Environment :	6.1	7.8	20
Mobility :	21.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

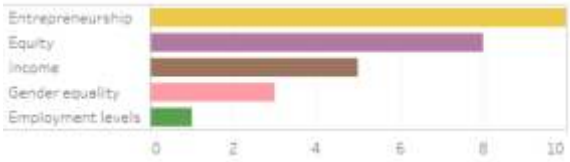
Population (Census 2011)
MC + OG: 16,83,200
U.A: 20,46,652

Performance within Characteristics

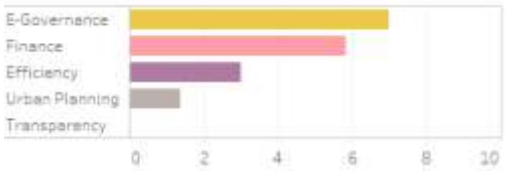
Living



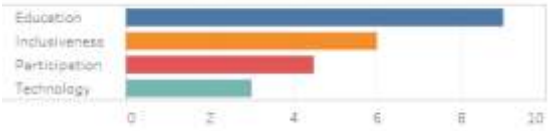
Economy



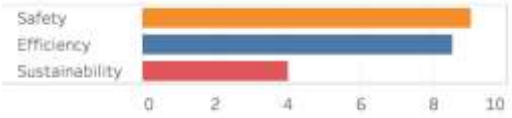
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 1
Governance: 1
People: 1
Mobility: 0

Strength:

Average annual registration of businesses per 100,000 population (172.45)

Percentage of city population living in slums (4.57)

Weakness:

Total water supply per capita per day (71 ltr)

Percentage of city population served by sewage network (20.71)

Pune

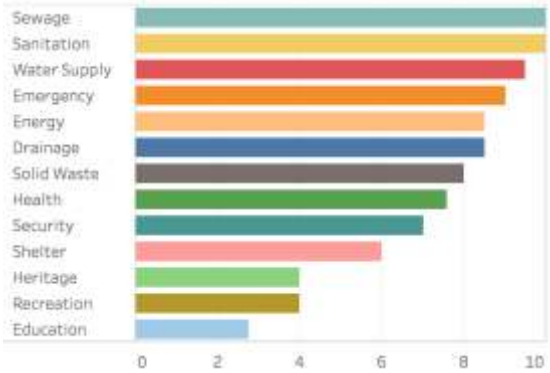
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	226.1	172.3	320
Living:	94.8	77.5	130
Economy:	40	27	50
Governance :	22.7	14.5	50
People:	33.1	25.3	40
Environment :	13	7.8	20
Mobility :	22.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

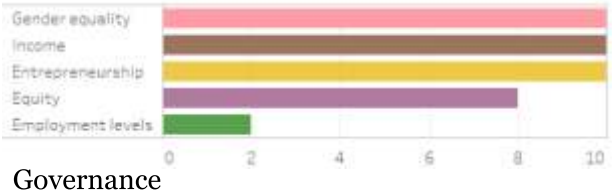
Population (Census 2011)
MC + OG: 31,15,431
U.A: 50,49,968

Performance within Characteristics

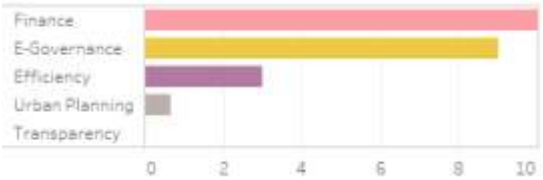
Living



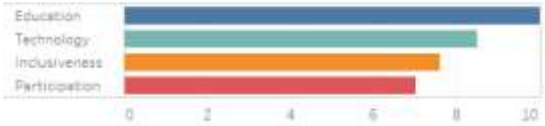
Economy



Governance

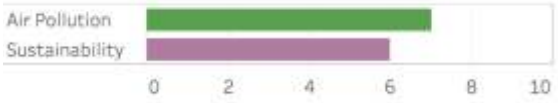


People



Mobility

Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 0
People: 1
Mobility: 0

Strength:

Total water supply per capita per day (235 ltrs)

Percentage of city population served by sewage network (98)

Weakness:

Personal crime incidence per 100,000 population (143.11)

Number of certified town planners working in ULB per 100,000 population(0.06)

Raipur

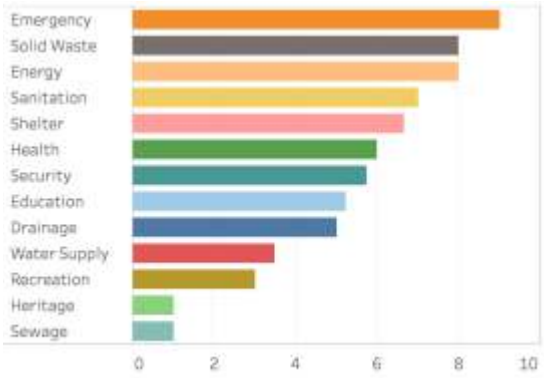
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	156	172.3	320
Living:	69.2	77.5	130
Economy:	28.8	27	50
Governance :	17.7	14.5	50
People:	23.1	25.3	40
Environment :	1.7	7.8	20
Mobility :	15.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

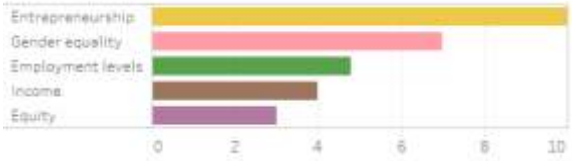
Population (Census 2011)
MC + OG: 10,10,087
U.A:11,22,555

Performance within Characteristics

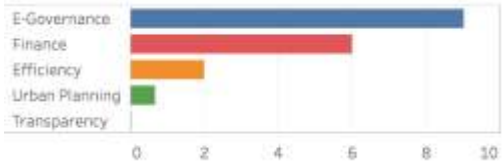
Living



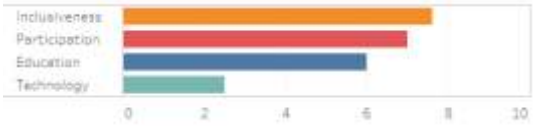
Economy



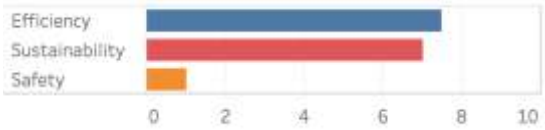
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 2
Governance: 0
People: 0
Mobility: 0

Strength:

Percentage of non revenue water (22)

Share of green modes of transport (63%)

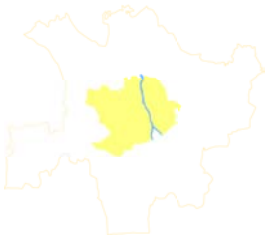
Weakness:

Personal crime incidence per 100,000 population (157.68)

Percentage of city population living in slums (40.24)

Rajkot

Index	Score		
	City*	Median**	Max. Obtainable***
Smart Cities:	186.7	172.3	320
Living:	86	77.5	130
Economy:	25.2	27	50
Governance :	17.3	14.5	50
People:	22.4	25.3	40
Environment :	12.3	7.8	20
Mobility :	23.5	19.3	30

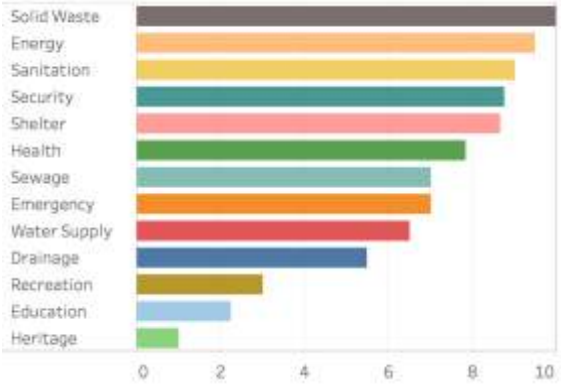


Population (Census 2011)
MC + OG: 12,86,995
U.A: 13,90,933

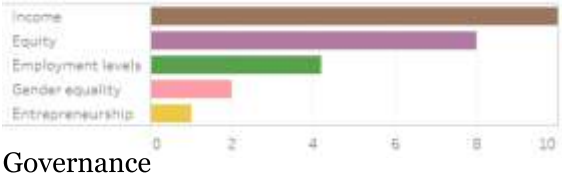
* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Performance within Characteristics

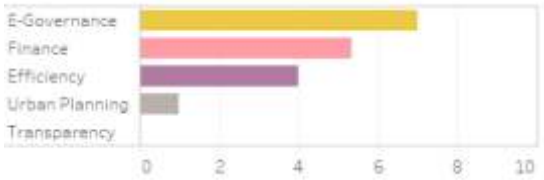
Living



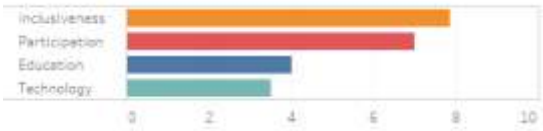
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living:1
Economy:1
Environment: 0
Governance: 1
People: 0
Mobility: 0

Strength:

Economic crime incidence per 100,000 population (6.33)

GDP per capita (3056.66$)

Weakness:

Percentage of women in workforce (11.34)

Number of certified town planners working ULB per lakh population (0.08)

Ranchi

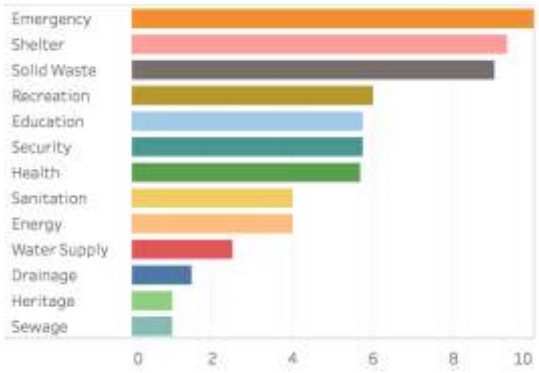
	Score		
	City*	Median**	Max. Obtainable***
Index			
Smart Cities:	166	172.3	320
Living:	65.5	77.5	130
Economy:	33.6	27	50
Governance :	20.3	14.5	50
People:	22.4	25.3	40
Environment :	4.7	7.8	20
Mobility :	19.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

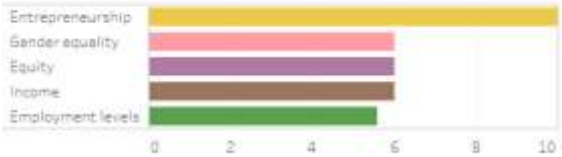
Population (Census 2011)
MC + OG: 10,73,440
U.A: 11,26,741

Performance within Characteristics

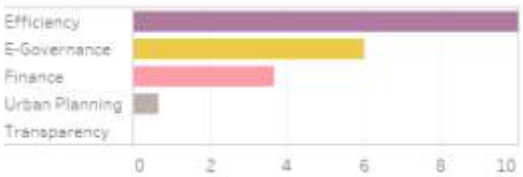
Living



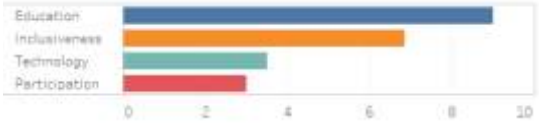
Economy



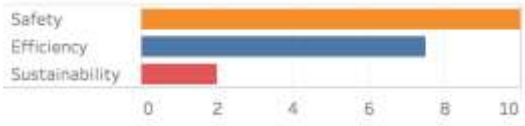
Governance



People



Mobility



Environment

Missing Data Points:

Living: 0
Economy: 1
Environment: 1
Governance: 0
People: 0
Mobility: 0

Strength:

Average annual registration business per 100,000 population (165.19)

Percentage of city population living in slum (6.92)

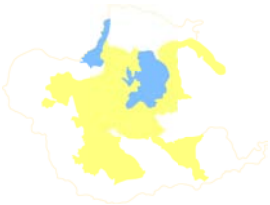
Weakness:

Percentage of marginalised households (43.33)

Percentage of non revenue water (64)

Srinagar

Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	148.5	172.3	320
Living:	77.9	77.5	130
Economy:	26.4	27	50
Governance :	7.2	14.5	50
People:	15.7	25.3	40
Environment :	2.3	7.8	20
Mobility :	19	19.3	30

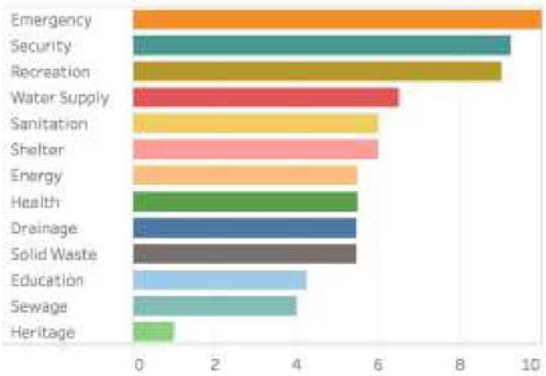


* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

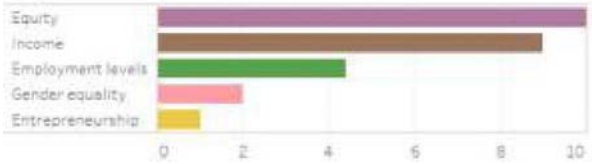
Population (Census 20
MC+OG:11,92,792
U.A: 12,73,312

Performance within Characteristics

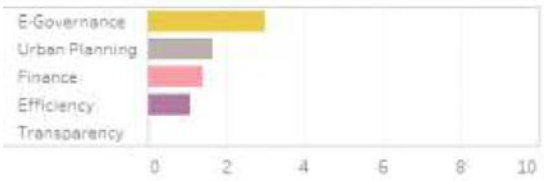
Living



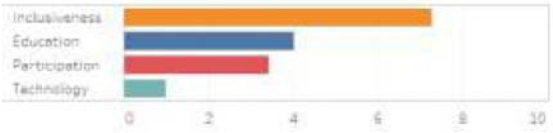
Economy



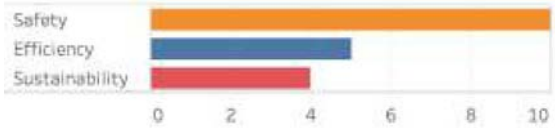
Governance



People



Mobility



Environment

Missing Data Points:

Living: 4
Economy: 1
Environment: 3
Governance: 3
People: 1
Mobility: 1

Strength:

Percentage of marginalised household (6.4)

Road accident deaths per 100,000 population (6.8)

Weakness:

Percentage of city population served by sewage network (33.99)

Percentage of households using renewable energy as power source (0.12)

11)

Surat

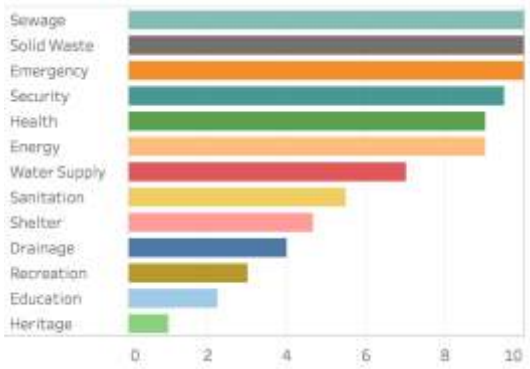
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	183.7	172.3	320
Living:	84.9	77.5	130
Economy:	33	27	50
Governance :	17.7	14.5	50
People:	12.6	25.3	40
Environment :	9	7.8	20
Mobility :	26.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 44,62,002
U.A: 45,85,367

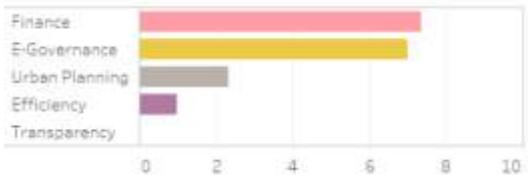
Performance within Characteristics

Living



Economy

Governance



People

Mobility

Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 0
Governance: 0
People: 0
Mobility: 0

Strength:

Water supply per capita per day (125 ltrs)

Average annual registration of businesses per 100,000 population (316.28)

Weakness:

Percentage of women in workforce participation (9.47)

Percentage of marginalised households (40.41)

Thiruvananthapuram

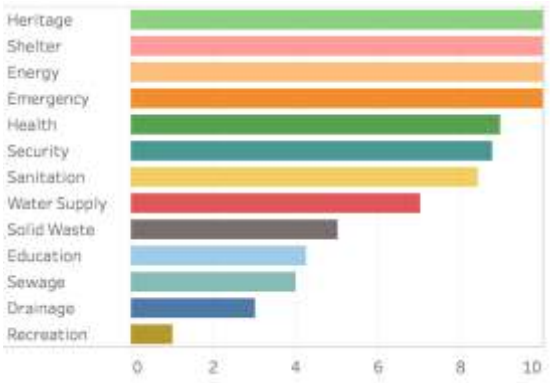
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	220.4	172.3	320
Living:	90.3	77.5	130
Economy:	46.8	27	50
Governance :	13.3	14.5	50
People:	32.8	25.3	40
Environment :	16.7	7.8	20
Mobility :	20.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 7,52,490
U.A: 16,87,406

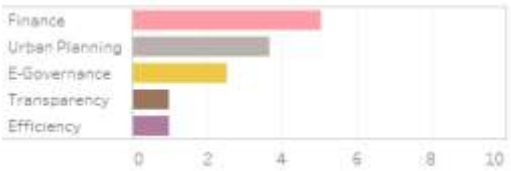
Performance within Characteristics

Living

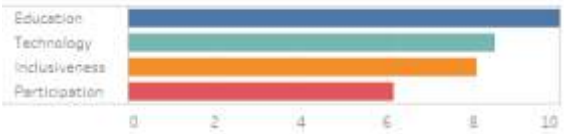


Economy

Governance



People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 1
Environment: 0
Governance: 3
People: 2
Mobility: 0

Strength:

Percentage of homeless population (0.03)

Percentage of women in workforce (26.48)

Weakness:

Percentage of city population served by sewage network (30)

Percentage of city population with regular solid waste collection (50)

Thrissur

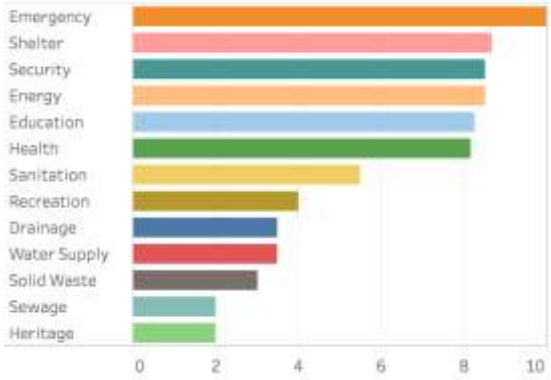
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	167.7	172.3	320
Living:	75.6	77.5	130
Economy:	32	27	50
Governance :	7.1	14.5	50
People:	34	25.3	40
Environment :	2	7.8	20
Mobility :	17	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

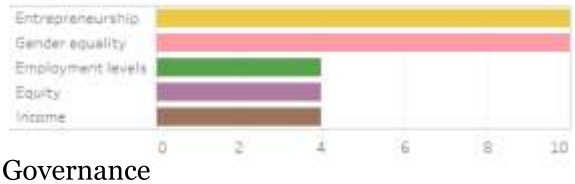
Population (Census 2011)
MC + OG: 3,15,596
U.A: 18,54,783

Performance within Characteristics

Living

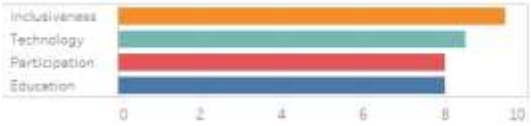


Economy

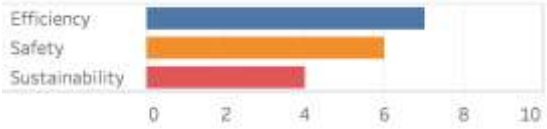


Governance

People



Mobility



Environment

Missing Data Points:

Living: 1
Economy: 3
Environment: 2
Governance: 2
People: 0
Mobility: 2

Strength:

Percentage of women in workforce (26.28)

Percentage of homeless population (0.06)

Weakness:

Percentage of city population served by sewage network (16.52)

Number of e- governance initiatives provided by municipal corporation (4)

Tiruchirappalli

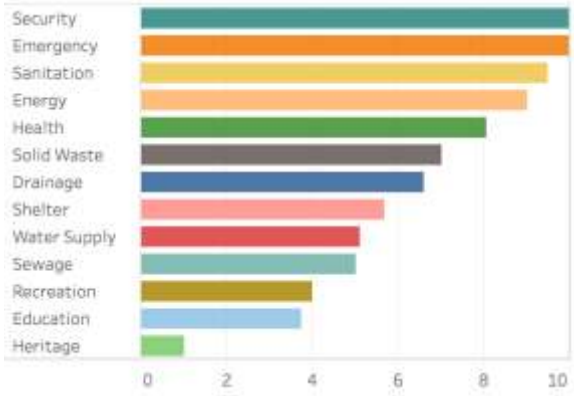
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	172.8	172.3	320
Living:	84.7	77.5	130
Economy:	27.6	27	50
Governance :	13.1	14.5	50
People:	25	25.3	40
Environment :	0.8	7.8	20
Mobility :	21.6	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 8,46,915
U.A: 10,21,717

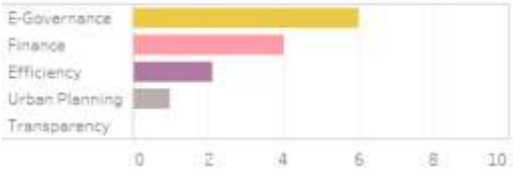
Performance within Characteristics

Living

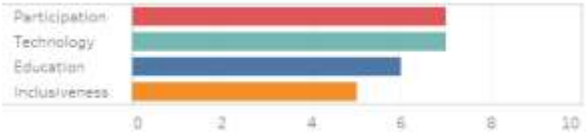


Economy

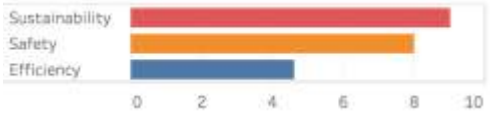
Governance



People



Mobility



Environment

Missing Data Points:

Living: 3
Economy: 1
Environment: 3
Governance: 2
People: 0
Mobility: 1

Strength:

Physical crime incidence per 100,000 population (4.21)

Sex ratio (1025)

Weakness:

Percentage of city population served by sewage network (45.16)

Average annual registration of business per 100,000 population (3.68)

Vadodara

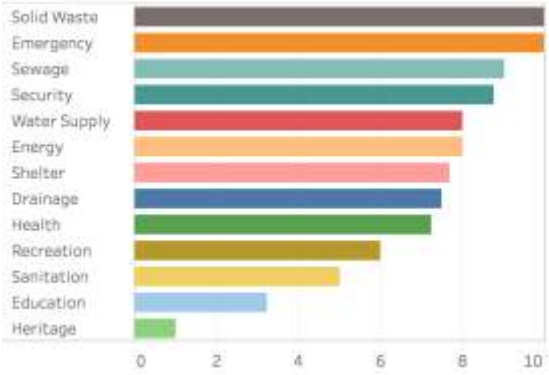
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	190.6	172.3	320
Living:	91.4	77.5	130
Economy:	27	27	50
Governance :	14.3	14.5	50
People:	26.1	25.3	40
Environment :	10.7	7.8	20
Mobility :	21.1	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

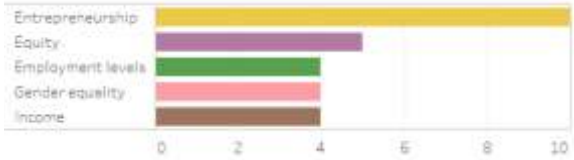
Population (Census 2011)
MC + OG: 16,66,703
U.A: 18,17,191

Performance within Characteristics

Living

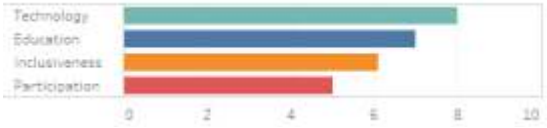


Economy

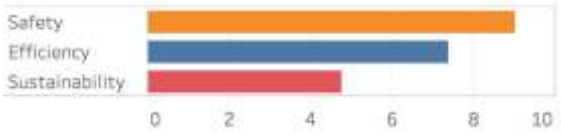


Governance

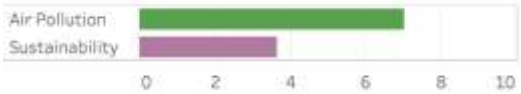
People



Mobility



Environment



Missing Data Points:

Living: 1
Economy: 0
Environment: 0
Governance: 0
People: 0
Mobility: 2

Strength:

Percentage of solid waste recycled (89)

Water supply per capita per day (160 ltrs)

Weakness:

Percentage of marginalised households (55.69)

Number of certified town planners working in ULB per 100,000 population (0.06)

Varanasi

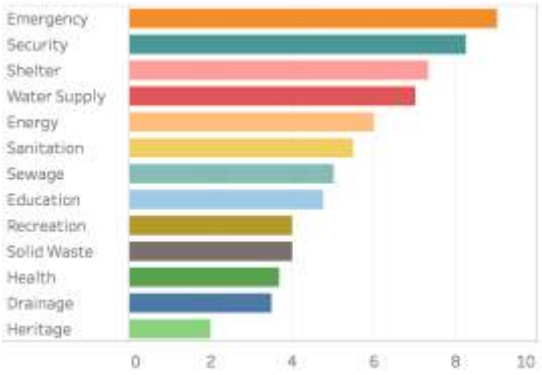
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	151.9	172.3	320
Living:	70	77.5	130
Economy:	19	27	50
Governance :	11	14.5	50
People:	17.1	25.3	40
Environment :	12.3	7.8	20
Mobility :	22.5	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

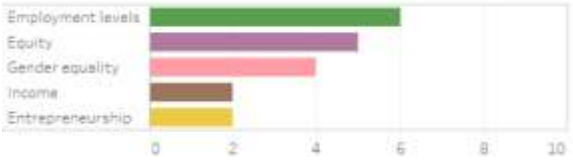
Population (Census 2011)
MC + OG: 12,01,815
U.A: 14,35,113

Performance within Characteristics

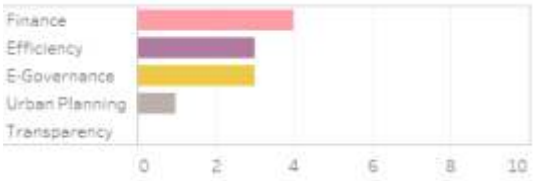
Living



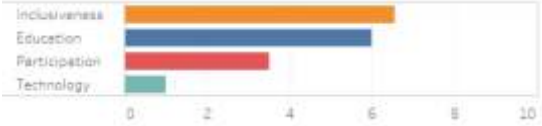
Economy



Governance



People



Mobility

Environment

Missing Data Points:

Living: 0
Economy: 0
Environment: 1
Governance: 0
People: 1
Mobility: 0

Strength:

Attitude towards in-migrants (7.11)

Physical crime incidence per 100,000 population (13.38)

Weakness:

Percentage of city population served by sewage network (46)

Number of certified town planners working in ULB per 100,000 population (0.08)

Vasai-Virar

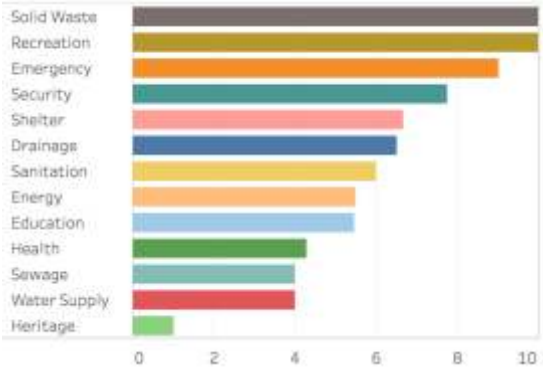
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	135.1	172.3	320
Living:	80.1	77.5	130
Economy:	14.2	27	50
Governance :	8.8	14.5	50
People:	21.8	25.3	40
Environment :	10	7.8	20
Mobility :	——	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 12,21,233
U.A: 12,21,233

Performance within Characteristics

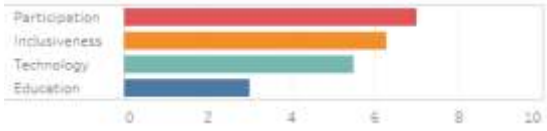
Living



Economy

Governance

People



Mobility

Environment

Missing Data Points:

Living: 4
Economy: 3
Environment: 2
Governance: 5
People: 0
Mobility: 2

Strength:

Percentage of women in work force (21.95)

Percentage of solid waste recycled (93)

Weakness:

Percentage of population served by sewage network (30.82)

Total water supply per capita per day (72 ltrs)

Vijayawada

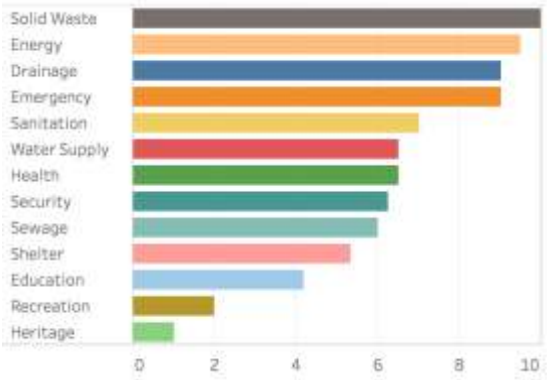
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	179.4	172.3	320
Living:	82.3	77.5	130
Economy:	39.6	27	50
Governance :	13.5	14.5	50
People:	27.5	25.3	40
Environment :	6.7	7.8	20
Mobility :	9.8	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

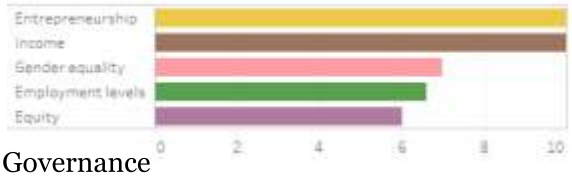
Population (Census 2011)
MC + OG: 10,48,240
U.A: 14,91,202

Performance within Characteristics

Living

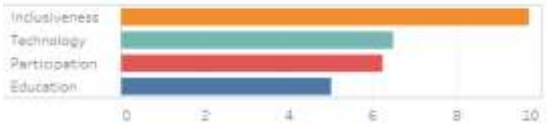


Economy

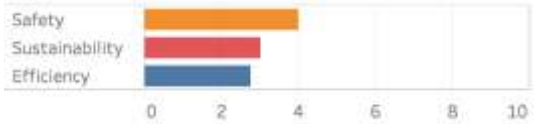


Governance

People



Mobility



Environment

Missing Data Points:

Living: 3
Economy: 1
Environment: 2
Governance: 2
People: 1
Mobility: 1

Strength:

GDP per capita (3060.45&)

Attitude towards in-migrants (9.43)

Weakness:

Road accident deaths per 100,000 population (44.52)

Number of certified town planners working in ULB per 100,000 population (0.9)

Visakhapatnam

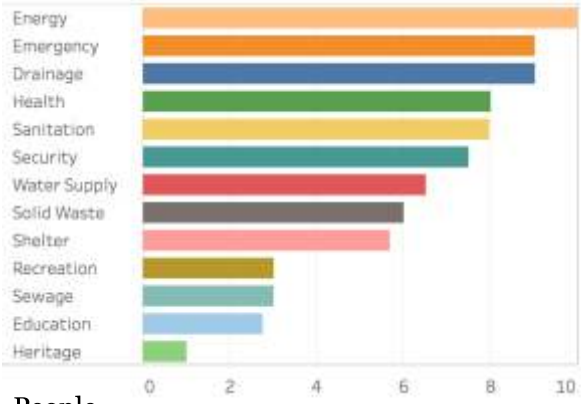
Index	Score City*	Median**	Max. Obtainable***
Smart Cities:	175.1	172.3	320
Living:	79.4	77.5	130
Economy:	25.2	27	50
Governance :	9	14.5	50
People:	29.8	25.3	40
Environment :	13.3	7.8	20
Mobility :	18.4	19.3	30

* City Score: Score obtained by the city
** Median Score: Median score of the respective Index
*** Max obtainable: Maximum score a city can get in the respective index category

Population (Census 2011)
MC + OG: 17,30,320
U.A: 17,30,320

Performance within Characteristics

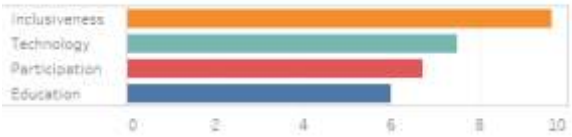
Living



Economy

Governance

People



Mobility

Environment

Missing Data Points:

Living: 2
Economy: 1
Environment: 0
Governance: 5
People: 1
Mobility: 1

Strength:

Attitude towards in-migrants (9.25)

Physical crime incidence per 100,000 population (17.86)

Weakness:

Percentage of city population served by sewage network (27.59)

Average annual registration of business per 100,000 population (15.20)

Notes

The Punj Lloyd Institute of Infrastructure Management seeks to help create top quality management capacity for the Infrastructure Sector. It seeks to undertake research that would help find solutions that the infrastructure industry faces. It seeks to become a one-stop shop for data and information on the infrastructure industry. It seeks to be a "Go To" place for any questions on the Infrastructure industry.

Shakti Sustainable Energy Foundation works to strengthen the energy security of the country by aiding the design and implementation of policies that encourage renewable energy, energy efficiency and the adoption of sustainable transport solutions..

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