

# BHOPAL HEALTHY CITY

## STATUS REPORT



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## **List of Abbreviations**

|       |   |
|-------|---|
| AMRUT | Atal Mission for Rejuvenation and Urban Transformation            |
| ANC   | Antenatal Care  |
| ASHA  | Accredited Social Health Activist                                 |
| BHCP  | Bhopal Healthy City Programme                                     |
| CAMPA | Compensatory Afforestation Fund Management and Planning Authority |
| FGDs  | Focussed Group Discussions  |
| FSSAI | Food Safety and Standards Authority of India                      |
| HFA   | Health For All  |
| HSTP  | Health Systems Transformation Platform                            |
| NHM   | National Health Mission   |
| IEC   | Information Education Communication                               |
| IIFM  | Indian Institute of Forest Management                             |
| IMR   | Infant Mortality Rate   |
| MMR   | Maternal Mortality Rate   |
| M&E   | Monitoring and Evaluation   |
| NCD   | Non-Communicable Diseases   |
| NFHS  | National Family Health Survey                                     |
| NHM   | National Health Mission   |
| PDS   | Public Distribution System  |
| PHCs  | Primary Health Centers  |



## **Background**

The Bhopal Healthy City initiative aims to enhance city residents' health outcomes across multiple dimensions. Given its broad scope, there's a need for ongoing, structured measurement of this initiative. To support the Roadmap (i.e., Plan) that is being developed, a Status Report is expected to present the current status of indicators across various dimensions that the Roadmap seeks to address.

The Status Report is foundational to future public-health initiatives in Bhopal. It offers an evidence-based approach that informs stakeholders, thereby enabling data-driven decision-making. This makes the report an invaluable asset for continuous improvement.

For a more detailed understanding of the program's operational intricacies, readers should consult other documents developed for this initiative. This Status Report focuses solely on methods, indicators, and current status.



## **Executive Summary**

The Bhopal Healthy City initiative aims to take a place-based approach to achieving better health outcomes for its residents by focusing on five core themes—water, sanitation, environment, food, and individual and family health.

The initiative adopts an inclusive approach involving various stakeholders, experts, and community representatives. Given the extensive scope of the initiative, there is a commitment to measuring and reporting on progress, hence the effort to identify indicators and establish a status report - a preliminary baseline so that progress can be measured from this point forward.

Over the last year, the initiative team has accumulated available data from diverse sources, providing a solid foundation for informed decision-making. The effort has blended rigorous scientific methodology and meaningful stakeholder involvement, allowing for scientific integrity and real-world applicability.

The headlines across the five themes are:

1. **Environment:** The data from MPPCB shows that **only 34.52% of good or excellent air quality days** signaling a need for targeted air quality improvement measures. The **traffic accident rate stands at 13.64 per 10,000 vehicles**, warranting an evaluation of road safety protocols. Targeted interventions are required to address air pollution and improve road safety to achieve a better quality of life in Bhopal.
2. **Water:** Accessibility is high, **with 100% of households having access** to clean and safe water and 90% benefiting from direct water connections. However, the per capita water consumption data suggests **a pressing need for water conservation measures**.
3. **Sanitation:** While the city has made commendable progress in sanitation—**100% of buildings are connected to underground drainage** systems and waste collection—the **utilization of treated wastewater** stands at 30-35%. This offers an opportunity for improvement, particularly in water conservation through increased wastewater reuse.
4. **Food:** A **9.2% incidence rate of low birth weight** among newborns points to potential nutrition-related issues. Although the **diet diversity score is high at 66.16**, indicating variety in dietary habits, only 68% of pregnant women take supplementary nutrition. Efforts to improve supplementary nutrition programs for pregnant women are required.
5. **Health:** Bhopal has shown impressive immunization rates, with **94.98% of children fully immunized and 90.35% receiving most vaccines**. This suggests an effective healthcare system in place. The diabetes rate, currently



at 15.58%, necessitates public health interventions focused on lifestyle education and management.

A series of consultations and desk research has allowed for the finalisation of a list of 50 indicators for the Bhopal Healthy City initiative. The rest of this document outlines the methodology and the current status across 22 of the 50 indicators. The annexure provides the complete list of the 50 indicators and the suggestions received during consultations.

As measurement against these indicators begins, the process of Bhopal becoming a healthy city will become evident over time.



## **1.1 Introduction**

This Status Report centers on a carefully curated list of [50 key indicators](#) that span five thematic areas: water, sanitation, environment, food, and individual/family health. As of August 2023, we have successfully gathered up-to-date data for 22 indicators from various departments within Bhopal.

Our indicator list has undergone rigorous refinement through extensive consultations with domain experts. We've eliminated 11 indicators initially included under the Sanitation, Food, Health, and Environment themes. This process also involved consolidating specific indicators to create a more focused report closely aligned with our core objectives.

Each thematic section within this report has been updated to reflect these refinements. We focus on presenting the status of each indicator, guided by the methodical adjustments we've made.

With these recalibrations and our commitment to a data-driven approach, this report is now better positioned to provide a comprehensive snapshot of various sectors in Bhopal. It serves as a foundation upon which future interventions and improvements can be built.

## **1.2 Methodology**

The initial phase of our project involved creating a list of potential indicators. The initial 60 Indicator List across our five core themes: water, sanitation, environment, food, and individual/family health. This list was compiled by reviewing various existing frameworks mentioned in the white paper and consulting authoritative sources relevant to each theme. We identified experts to provide input.

We refined this indicator list through a two-pronged approach:

1. Consultation Workshops: These gatherings featured experts, officials, and community stakeholders to ensure the selected indicators were scientifically sound and contextually relevant.
2. Descriptive Research: This involved studying critical variables like water quality and healthcare services to understand the city's current status, which informed our future action plans.

Data Sources:



Our report relies on a multi-faceted blend of data from various secondary sources. This includes government bodies, NGOs, and well-recognized data sets like the National Family Health Survey (NFHS) and the Demographic Health Surveys (DHS). This multi-source approach has endowed us with a rich, nuanced understanding of the current state of public health in Bhopal.

With this data, we aim to:

- Utilize real-time data for ongoing monitoring and timely intervention, enhancing our focus on data-driven outcomes.
- Forge collaborations with local governing bodies and NGOs to implement our proposed actions effectively.
- Periodically refresh our indicators to reflect the changing needs and feedback of the community, ensuring that our strategies remain responsive and adaptive.

Our methodology offers a robust baseline by combining both exploratory and descriptive methods. It helps us understand the present scenario and lays the groundwork for future research and interventions.

## **1.3 Scope & Limitations**

### **1.3.1 Scope**

The Bhopal Healthy City Program is committed to positively affecting the lives of its residents by concentrating on five critical areas: water, sanitation, environment, food, and individual and family health. This multifaceted strategy allows for a nuanced understanding of the city's health challenges and identifies potential improvement opportunities. We enrich the program with various insights by engaging a broad array of contributors, from subject matter experts to community advocates. Our efforts aim to make a tangible difference in air quality, water conservation, sanitation, nutrition, and healthcare sectors.

### **1.3.2 Limitations**

It's crucial to recognize the limitations of this report. We have up-to-date data for only 22 of the 50 identified indicators and are diligently working to address this gap. While generally robust, reliance on secondary sources leaves room for future research that may provide more current and unbiased data. Since the Healthy City initiative will involve coordination among different departments, collecting relevant data across departments will require a consistent effort to put the required systems in place and create data-sharing mechanisms.



## 2.1 Food:

### 2.1.1 Introduction

#### 4 Indicators- F1 to F4

The food segment is indispensable in the Bhopal Healthy City Program, emphasizing public health and sustainability. We've streamlined our focus to four key indicators, labeled F1 to F4, each designed to probe essential facets of food security, nutrition, and sustainable food systems. This streamlined set of indicators underscores our intent to adopt a more focused and impactful strategy concerning food health. We acknowledge that the availability of nutritious, safe, and culturally appropriate food is governed by many interconnected factors.

The following sections will provide a detailed overview of these four indicators, capturing their current status and elaborating on the methodology that will steer them. Through this in-depth scrutiny, we establish a foundation for ongoing evaluation and targeted action to advance our broader mission of cultivating a healthier and more sustainable Bhopal.

### 2.1.2 Indicators and Current Status

| Indicator No | Indicator   | Value  | Denominator Formula   |
|--------------|---|--|---|
| F5           | Stability of food price and supply                          | Rates of different commodities were provided by the dept | Are the food prices (staple grains, vegetables) stable over the last six months?<br>Yes/No<br><br>If No, what are the main reasons? |
| F9           | Percentage of pregnant women taking Supplementary Nutrition | 68%  | (No. of pregnant women taking Supplementary Nutrition under the ICDS  |



|  |                                    |  |   |
|--|------------------------------------|--|---|
|  | under the ICDS programme regularly |  | programme/ total no. of women enrolled in the ICDS programme for Supplementary Nutrition) x 100 |
|--|------------------------------------|--|---|



## 3.1 Water

### 3.2 Introduction

The Water Pillar is a cornerstone in the Bhopal Healthy City Program framework, encapsulating the vitality of public health, environmental sustainability, and social equity. We have honed our approach around four principal indicators, designated W1 to W7, each devised to scrutinize crucial dimensions of water quality, accessibility, and sustainable management.

Our targeted selection of indicators highlights our commitment to ensuring clean and safe water for all and managing water resources in an ecologically balanced manner. Its availability, purity, and management are influenced by a complex web of factors—ranging from infrastructure and climate to cultural practices and policies.

In concert with other program pillars, the Water Pillar aims to create a ripple effect—pioneering progressive changes that will contribute to a healthier, more sustainable, and equitable Bhopal.

### 3.3 Indicators and Current Status

| Indicator No | Indicator   | Value | Denominator Formula  |
|--------------|---|-------|--|
| W1           | Households that have access to clean and safe water (%) | 100%  | [(No. of HHs with municipal water supply connection) + (No. of HHs with their own sources like groundwater) + (No. of HHs having access to common/indirect sources like public taps, water tankers, surface water bodies etc.) / Total No. of HHs in the city] x 100 |



|    |   |                |   |
|----|---|----------------|---|
| W2 | The number of HHs gaining access to a safely managed drinking water service (%) | 100%           | [(No. of HHs dependent on municipal water supply) + (No. of HHs with own sources like ROs) + (No. of HHs having access to common/indirect sources like public taps, water tankers, surface water bodies etc.) / Total No. of HHs in the city] x 100 |
| W3 | Households that have direct water connections (%)                               | 90%            | (No. of Domestic Water Supply Connections / Total no. of HHs in the city) x 100   |
| W4 | Per capita water consumption (lpcd)   | 135 - 160 LPCD | [(quantity of water supplied through piped connections/no. of people covered through piped supply) + (estimated water consumed by people from other sources like groundwater or surface water etc./no. of people using other sources)] / 2          |



## **4.1 Sanitation**

### **4.1.1 Introduction**

The Sanitation theme is a core aspect of the Bhopal Healthy City Program, serving as an essential element of public health and sustainable living. This section focuses on nine carefully selected indicators (S2 to S10). These indicators are designed to assess various elements of sanitation, including waste management, hygiene practices, and cleanliness.

### **4.1.2 Indicators and Current Status**

| <b>Indicator No</b> | <b>Indicator</b>  | <b>Value</b>   | <b>Denominator Formula</b>   |
|---------------------|---|--|--|
| S2                  | Basic sanitation facilities provided in health facilities and schools (%)     | (U DISE) Total no of School(Govt +Private)= 2976. Total no of Toilets=2834, Male Urinal =7720, Female Urinal= 6970 | [(No. of schools with functional gender-segregated toilets) + (No. of health facilities with functional gender-segregated toilets)] / Total no. of schools and health facilities in the city x 100 |
| S3                  | Women and girls with improved menstrual hygiene practices (%)                 | 100% (BMC), 83% (WCD)  | (Estimated women and adolescent girls using safe and hygienic menstrual practices) / No. of women and adolescent girls in the city) x 100  |
| S4                  | Child caregivers and food preparers with appropriate handwashing behavior (%) | 88.08%   | (No. of Anganwadi workers who practice handwashing and hygiene practices / No. of Anganwadi workers in the city) x 100   |



|     |   |                                   |  |
|-----|---|-----------------------------------|--|
| S5  | Buildings connected to underground drainage to safely dispose wastewater (%)    | 100%                              | (No. of buildings/properties connected to UGD in the city / Total no. of buildings/properties in the city) x 100                   |
| S6  | Portion of wastewater generated in the city that is scientifically treated (%)  | 198.45 MLD                        | (Quantity of wastewater scientifically treated / Total quantity of wastewater generated in the city) x 100                         |
| S7  | Portion of treated wastewater re-used (%)                                       | 30-35%                            | (Quantity of treated wastewater re-used / Total quantity of wastewater scientifically treated in the city) x 100                   |
| S8  | Buildings covered by solid waste collection system (%)                          | 100%                              | (No. of buildings/properties covered by waste collection system in the city / Total no. of buildings/properties in the city) x 100 |
| S9  | Portion of solid waste collected in the city that is scientifically treated (%) | 100%                              | (Quantity of solid waste scientifically treated / Total quantity of solid waste generated in the city) x 100                       |
| S10 | Portion of solid waste that is reused (%)                                       | Dry - 85 - 90 % , Wet - 12 - 15 % | (Quantity of treated solid waste reused / Total quantity of solid waste scientifically treated in the city) x 100                  |



## 5.1 Environment

### 5.1.1 Introduction

The Environment theme is a critical component of the Bhopal Healthy City Program, emphasizing its role in public health and ecological sustainability. This section outlines 12 carefully selected indicators (E1 to E13), each geared toward assessing various elements of environmental health, such as air quality, water conservation, and waste management.

### 5.1.2 Indicators and Current Status

| Indicator No | Indicator  | Value  | Denominator Formula  |
|--------------|--|--|--|
| E1           | The proportion of days with good and excellent air quality (%) | 34.52%   | (No. of days in a year with AQI less than 100 / 365) x 100                         |
| E12          | Traffic accident rate per 10,000 vehicles                      | 13.6<br><br>Total Accident- 2788, No of Vehicles - 2044000 approx (2022). For 2021, Total Accident- 2616 | [No. of traffic accidents in a year / (Total no. of vehicles in the city /10,000)] |



## 6.1 Individual and Family Health

### 6.1.1 Introduction

The Individual and Family Health theme is a critical component of the Bhopal Healthy City Program. With 18 meticulously selected indicators (H1 to H17 and S1), we aim to address health and wellness from a comprehensive perspective. These indicators touch upon various facets of individual and family health, such as preventive care, mental health, and lifestyle factors.

### 6.1.2 Indicators and Current Status

| Indicator No | Indicator   | Value  | Denominator Formula  |
|--------------|---|--------|--|
| H11          | Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT) (%) | 94.98% | (No. of children 12-23 months fully immunized/ total no. of children aged 12-23 months) x 100    |
| H17          | Children under 5 years who are wasted (weight-for-height) (%)                                   | 1.04%  | (No. of children under 5 years who are wasted/ total no. of children under 5 yrs) x 100          |
| H18          | Children under 5 years who are severely wasted (weight-for-height) (%)                          | 1.11%  | (No. of children under 5 years who are severely wasted/ total no. of children under 5 yrs) x 100 |
| H19          | %of population with diabetes  | 15.58% | (No. of people with diabetes/ total no. of people) x 100   |



|    |   |      |  |
|----|---|------|--|
| S1 | Households with reliable access to improved sanitary facilities (%) | 100% | $\frac{[(\text{HHs with individual toilets}) + (\text{HHs having access to well-maintained shared/community toilets})]}{\text{Total no. of HHs in the city}} \times 100$ |
|----|---|------|--|

### **Key Expert Suggestions:**

- Differentiate health services into three levels: primary (HWC+PHC), secondary (CHC+DH), and tertiary (Hospitals, medical colleges) for more granular tracking.
- Regularly update the data, given the rate of urbanization and demographic changes.
- Consider incorporating mental health indicators, given emerging mental health issues.
- For the elderly (60+), consider using the 8% figure as the denominator for specific indicators.
- Consider implementing a surveillance system for more accurate and timely data collection.



## **Annexure 1: NFHS- Relevant Indicators, BHOPAL**

| SR. NO | INDICATORS  | NFHS-5- (2019-21)<br>BHOPAL | NFHS-4 (2015-16)<br>BHOPAL |
|--------|---|-----------------------------|----------------------------|
| 1)     | Population living in households with an improved drinking-water source (%)  | 96.7                        | 97.7                       |
| 2)     | Population living in households that use an improved sanitation facility (%)  | 79.6                        | 63.6                       |
| 3)     | Households with any usual member covered under a health insurance/financing scheme (%)  | 50.7                        | 35.9                       |
| 4)     | Health workers ever talked to female non-users about family planning (%)  | 20.6                        | 27.0                       |
| 5)     | Children age 12-23 months fully vaccinated based on information from either vaccination card or mother's recall (%)           | *                           | 62.3                       |
| 6)     | Children who received postnatal care from a doctor/nurse/LHV/ANM/midwife/other health personnel within 2 days of delivery (%) | 86.6                        | na                         |



|     |   |      |      |
|-----|---|------|------|
| 7)  | Births attended by skilled health personnel (%)   | 92.1 | 94.3 |
| 8)  | Children age 12-23 months who received most of their vaccinations in a public health facility (%) | *    | 88.7 |
| 9)  | Children under 5 years who are stunted (height-for-age) (%)                                       | 19.9 | 47.6 |
| 10) | Children under 5 years who are severely wasted (weight-for-height)                                | 4.3  | 8.1  |
| 11) | Children under 5 years who are underweight (weight-for-age)                                       | 29.1 | 39.5 |



## **Annexure 2: ELIMINATED/MERGED INDICATORS**

| <b>THEME</b> | <b>INDICATOR</b>   | <b>DATA</b> |
|--------------|--|-------------|
| Sanitation   | Child caregivers and food preparers with appropriate handwashing behavior (%)  | 88.08%      |
| Food         | Incidence of low birth weight among newborns (%)   | 9.2         |
| Food         | Members who are undernourished/ underweight (including children under 5) (%)   |             |
| Food         | Overweight or obesity among members (%)  |             |
| Food         | Number of cases of food poisoning per 1000 population  |             |
| Food         | Household Diet Diversity Score   | 66.16       |
| Food         | % of targeted households whose members had to go to sleep at night hungry in the past four weeks because there was not enough food |             |
| Health       | Coverage of Community Health Care Centers in the city (%)  | 8.05%       |
| Environment  | The average share of the built-up area of cities that is open space for public use for all   |             |
| Health       | No. of medical officers per 20,000-25,000  |             |



|        |  |        |
|--------|--|--------|
| Health | Children aged 12-23 months who received most of the vaccinations in public health facilities (%) | 90.35% |
|--------|--|--------|



## **Annexure 3 - LIST OF 50 INDICATORS**

### **Individual and Family Health Indicators**

| <b>SNo</b> | <b>Indicators</b>   | <b>Definition</b>  | <b>Source of Data</b>  | <b>Suggestions/ Remarks</b>   |
|------------|---|--|------------------------|---|
| 1.         | Coverage of health services at primary (HWC+PHC), secondary (CHC+DH) and tertiary (Hospitals+Medical colleges) levels at both public and private facilities (%) | (No. of primary or secondary or tertiary health centers/ total urban population)x100   | NUHM + AYUSH, DHS      | The revised metric includes public and private services at three levels: primary, secondary and tertiary.   |
| 2.         | No. of medical allopathic doctors/ 20-25,000 population and No. of medical allied doctors/ 20-25,000 population   | No. of allopathic doctors) / (Total population of city/20-25,000 population) (No. of allied medical doctors) / (Total population of city / 20-25,000 population) | CMHO, Medical Council, | Metric revised from general practitioners to include medical allopathic and allied doctors. This will throw light on the type of practitioners available. |
| 3.         | No. of ANM/ 10,000 people and No. of ASHA/ 1000 people  | (No. of ANM / (Total population of city / 10,000) (No. of ASHA/ (Total population of city / 1000)  | ASHA/ANM               | Metric changed from registered nurses to ASHA and ANM. This metric can be changed in future with changes in   |



|    |   |  |                            |  |
|----|---|--|----------------------------|--|
|    |   |  |                            | urbanization rate.   |
| 4. | No. of psychiatric practitioners/1 lakh population                            | (No. of mental health practitioners / (Total population of city / 1,00,000)      | NHM, CMHO, Medical Council | The revised metric now includes not only psychiatrists but also social workers and clinical psychologists. It aligns with the Mental Health Act's requirement of one psychiatrist per 100,000 people and considers existing services provided by Health and Wellness Centers (HWCs). The indicator aims to address the increasing prevalence of mental health issues like stress and depression. |
| 5. | Percentage of people over 60 years old screened for NCDs and tuberculosis (%) | (No. of people 60+ screened for NCDs and TB/ 8% of total urban population)x100   | CBAC form (ASHA)           | The revised metric aligns with WHO standards, targeting 8% of the population aged 60+ and includes annual screenings and an emphasis on healthy practices.   |
| 6. | Maternal Mortality Rate   | (No. of maternal deaths in a population/ total no. of women of reproductive age) | NHM                        | Targeting a 10% decrease every 5 years; note some deaths may be inbound, not local to Bhopal. Robust surveillance system required.   |



|     |  |  |                                    |  |
|-----|--|--|------------------------------------|--|
| 7.  | Infant Mortality Rate  | (No. of deaths of children less than 1 yr of age/ total no. of live births in the same year) x 1000                    | NHM, SRS (value for now - 33)      | It is crucial to create a robust surveillance system for this indicator  |
| 8.  | Under-5 Mortality Rate   | (No. of deaths below age 5 yrs during a given period/ total no. of live births during a given period) x 1000           | NHM, SRS, (value for now - 38)     | To establish a surveillance system to monitor deaths, targeting a 10% decrease every 5 years   |
| 9.  | Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT (%) | (No. of children 12-23 months fully immunized/ total no. of children aged 12-23 months) x 100                          | NFHS/Primary Data Collection, SRS. | Data source updated; 76.5% of EPI vaccines' adverse events were monitored in inaccessible centers compared to private facilities, aiming for a 10% improvement |
| 10. | Households with any usual member covered by a health scheme or health insurance (%)            | No. of households with any usual member covered by a health scheme or health insurance/ total no. of households) x 100 | ABHA, Ayushman                     | The revised metric includes Ayushman Bharat, Govt coverage, Ayushman Bharat Vs Private Vs CGHS utilization   |
| 11. | Number of HIV positive among tested per 10000 Population                                       | (No. of HIV positive/ total no. of people tested for HIV) x 1000   | NFHS, 8/10,000 (MPSACS)            | Monitor test rates and positivity through Sentinel Surveillance, ensuring linkage to care as guided by MP Aids Control Organization.                           |
| 12. | % of the population with Obesity   | (No. of obese people/ total no. of people) x 100   | NFHS                               | Regular BMI screenings for obesity at designated venues.   |



|     |  |  |                 |  |
|-----|--|--|-----------------|--|
| 13. | Children under 5 years who are stunted (height-for-age) (%)            | (No. of children under 5 years who are stunted/ total no. of children under 5 yrs) x 100         | ICDS            | Inbounds for referral care, NRC (Urban), Anganwadi Inputs  |
| 14. | Children under 5 years who are wasted (weight-for-height) (%)          | (No. of children under 5 years who are wasted/ total no. of children under 5 yrs) x 100          | NFHS/ICDS       | Inbounds for referral care, NRC (Urban), Anganwadi Inputs  |
| 15. | Children under 5 years who are severely wasted (weight-for-height) (%) | (No. of children under 5 years who are severely wasted/ total no. of children under 5 yrs) x 100 | NFHS/ICDS       | Inbounds for referral care, NRC (Urban), Anganwadi Inputs  |
| 16. | %of the population with diabetes                                       | (No. of people with diabetes/ total no. of people) x 100   | NCD (CBAC Form) | Regular screening for NCDs, vision impairment, and sedentary lifestyle, with borderline cases linked to care |
| 17. | % of the population with heart disease                                 | (No. of people with heart disease/ total no. of people) x 100                                    | NFHS, CBAC Form | The metric was revised to include NCDs and HWC services.   |

### **Food/ Nutrition Indicators**

| SNo. | Indicator                          | Definition   | Source of Data        | Suggestions/ Remarks |
|------|------------------------------------|--|-----------------------|----------------------|
| 1.   | Stability of food price and supply | Are the food prices (staple grains, vegetables) stable over the last 6 months? Yes/ No | Food & Civil Supplies | No change suggested  |



|    |  |   |                                      |  |
|----|--|---|--------------------------------------|--|
|    |  | If No, what are the main reasons?   |                                      |  |
| 2. | Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) | Is FIES being calculated?<br>Yes/ No<br>If Yes, what is the score?  | Food & Civil Supplies                | Bhopal performs well on this indicator, it does not have food insecurity issues. About 80% of the population is covered through the One Nation One Ration Card (ONRC). |
| 3. | Percentage of pregnant women taking Supplementary Nutrition under the ICDS programme regularly                           | (No. of pregnant women taking Supplementary Nutrition under the ICDS programme / Total no. of women enrolled in the ICDS programme for Supplementary Nutrition) x 100 | NHM, WCD                             | No change suggested  |
| 4. | Number of food safety certifications issued (%) for Clean Street Food Hub Certification                                  | (No. of food safety certifications issued/ Total no. of food safety certificate applications) x 100   | BMC/ ULB Food Safety and Health Dept | The revised metric includes FDA components. Refer to the guidelines issued by GoI for food street modernisation. Can consider EatRight campus certification.           |

### **Water Indicators**

| SNo. | Indicator   | Definition  | Source of Data | Suggestions/ Remarks |
|------|---|---|----------------|----------------------|
| 1.   | Households that have access to clean and safe water (%) | $[(\text{No. of HHs with municipal water supply connection}) + (\text{No. of HHs with their own sources like groundwater}) + (\text{No. of HHs having access to common/indirect sources like public taps, water tankers, surface water bodies etc.}) / \text{Total No. of HHs in the city}] \times 100$ | BMC            | No change suggested  |
| 2.   | Number of HHs   | $[(\text{No. of HHs dependent on$   | BMC            | Indicator to be      |



|    |  |  |                           |   |
|----|--|--|---------------------------|---|
|    | gaining access to a safely managed drinking water service (%)  | municipal water supply) + (No. of HHs with own sources like ROs) + (No. of HHs having access to common/indirect sources like public taps, water tankers, surface water bodies etc.) / Total No. of HHs in the city] x 100                  |                           | re-considered. It is a challenge to find this data at the household level.  |
| 3. | Households that have direct water connections (%)              | (No. of Domestic Water Supply Connections / Total no. of HHs in the city) x 100  | BMC                       | No change suggested   |
| 4. | Per capita water consumption (lpcd)                            | [(quantity of water supplied through piped connections/no. of people covered through piped supply) + (estimated water consumed by people from other sources like groundwater or surface water etc./no. of people using other sources)] / 2 | BMC                       | No change suggested   |
| 5. | Buildings practicing rainwater harvesting (%)                  | [No. of buildings/properties in the city with functional RWH system / Total no. of buildings in the city] x 100  | BMC                       | No change suggested   |
| 6. | Households/Establishments reusing water (on-site) (%)          | [No. of HHs and Establishments reusing the domestic wastewater within their premises/ Total no. of HHs and Establishments in the city] x 100   | BMC, MPPCB                | Indicator to be re-considered. It is a challenge to find this data at the household level.  |
| 7. | Integrated Water Resources Management implemented in the city? | Yes/ No<br>If Yes, please share the details  | BMC, Water Resources, BDA | No change suggested   |
| 8. | Drainage water tested for the presence of any pathogens.       | Drainage water is collected and tested for the presence of Pathogens/viruses using technology.   | BMC/ Swasti               | This is a new indicator added.<br>To establish a mechanism for Drainage water testing and share data with govt. for taking appropriate steps in time. |



### **Sanitation Indicators**

| <b>SNo.</b> | <b>Indicator</b>   | <b>Definition</b>  | <b>Source of Data</b>  | <b>Suggestions/ Remarks</b>  |
|-------------|--|--|------------------------|--|
| 1.          | Percentage of HHs with reliable access to improved sanitary facilities             | $[(\text{HHs with individual toilets}) + (\text{HHs having access to well-maintained shared/community toilets})] / \text{Total no. of HHs in the city} \times 100$   | BMC                    | No change suggested  |
| 2.          | Basic sanitation facilities provided in health facilities and schools (%)          | $[(\text{No. of schools with functional gender-segregated toilets}) + (\text{No. of health facilities with functional gender-segregated toilets})] / \text{Total no. of schools and health facilities in the city} \times 100$ | BMC, Education, Health | No change suggested  |
| 3.          | Women and girls with improved menstrual hygiene practices (%)                      | $(\text{Estimated women and adolescent girls using safe and hygienic menstrual practices}) / \text{No. of women and adolescent girls in the city} \times 100$  |                        | Revised metric to include slums. Adolescent girls' data can be obtained from schools and AWCs. |
| 4.          | Buildings connected to underground drainage to safely dispose of wastewater (%)    | $\text{No. of buildings/properties connected to UGD in the city} / \text{Total no. of buildings/properties in the city} \times 100$  | BMC                    | No change suggested  |
| 5.          | The portion of wastewater generated in the city that is scientifically treated (%) | $(\text{Quantity of wastewater scientifically treated} / \text{Total quantity of wastewater generated in the city}) \times 100$  | BMC, MPPCB             | No change suggested  |
| 6.          | Portion of treated wastewater reused (%)   | $(\text{Quantity of treated wastewater reused} / \text{Total quantity of wastewater scientifically treated in the city}) \times 100$   | BMC, MPPCB             | No change suggested  |
| 7.          | Buildings covered by solid waste collection system (%)                             | $(\text{No. of buildings/properties covered by waste collection system in the city} / \text{Total no. of buildings/properties in the city}) \times 100$  | BMC                    | No change suggested  |



|    |   |   |     |                     |
|----|---|---|-----|---------------------|
| 8. | A portion of solid waste collected in the city that is scientifically treated (%) | (Quantity of solid waste scientifically treated / Total quantity of solid waste generated in the city) x 100      | BMC | No change suggested |
| 9. | Portion of solid waste that is reused (%)   | (Quantity of treated solid waste reused / Total quantity of solid waste scientifically treated in the city) x 100 | BMC | No change suggested |

### **Environment Indicators**

| <b>SNo.</b> | <b>Indicator</b>   | <b>Definition</b>   | <b>Source of Data</b>  | <b>Suggestions/ Remarks</b>   |
|-------------|--|---|--|---|
| 1.          | Proportion of days with good and excellent air quality (%) | (No. of days in a year with AQI less than 100 / 365) x 100  | BMC, Smart City, MPPCB   | No change suggested   |
| 2.          | Access to clean fuels and technologies, (% of population)  | Estimated no. of people using clean fuels for cooking, transportation etc./ Total population of the city) x 100 | MP Urja Vikas Nigam Ltd., Vehicle registration data from RTO, LPG user data under Ujjwala scheme | Revised metric to define clean fuels in each sector e.g. CNG in transportation.                             |
| 3.          | % of the energy used by the city derived from renewables   | (Energy sourced from renewable sources / Total energy consumption of the city) x 100                            | MP Urja Vikash Nigam Ltd., MPEB, Rooftop Solar Installations                                     | Check MPEB targets for renewable sources  |
| 4.          | % of population living in slums                            | (No. of people living in urban slums / Total population of the city) x 100                                      | BMC or Self Identification Survey  | Alternate indicators like inadequate housing could be measured. Data on the BPL population could be a proxy |
| 5.          | Number of homeless people per 10,000 population            | No. of homeless people / (Total population of the city / 1000)  | Planning Dept. BMC for night shelters data.  | Revised metric to include No. of people using Night Shelters.   |



|     |   |   |                                  |  |
|-----|---|---|----------------------------------|--|
| 6.  | Hazardous waste generated per capita  | Quantity of hazardous waste generated in the city / Total population of the city  | MPPCB                            | Revised metric to define hazardous waste   |
| 7.  | Tonnes per capita of greenhouse gas emissions                               | Quantity of greenhouse gasses generated in the city / Total population of the city  |                                  | No change suggested  |
| 8   | % of neighborhoods that have a park   | (No. of neighborhoods with a park / Total no. of neighborhoods in the city) x 100   | City Biodiversity Register, IIFM | An alternative indicator could be the availability of green spaces in a ward/ population of that ward. Measure footfall data in parks and playgrounds. |
| 9.  | % of neighborhoods with public transport stops in their geographical center | (No. of neighborhoods with a public transport stop within walkable distance / Total no. of neighborhoods in the city) x 100 | MPRTC                            | Alternative indicator could be Year on Year increase in ridership of the public transport system.  |
| 10. | Level of Pedestrianization in the city (%)                                  | $[(\text{Total length of footpaths in the city} \times 2) / \text{Total length of roads in the city}] \times 100$           | BMC                              | No change suggested  |
| 11. | Traffic accident rate per 10,000 vehicles                                   | No. of traffic accidents in a year / (Total no. of vehicles in the city / 10,000)]  | Traffic Dept                     | No change suggested  |
| 12. | Traffic injury mortality rate (%)   | [No. of mortalities due to traffic accidents in a year / (Total no. of traffic accidents in a year)]x 100                   | Traffic Dept                     | No change suggested  |

