About This Series

Building Healthy Cities (BHC) is a USAID-funded learning project in four Smart Cities in Asia – Indore, India; Makassar, Indonesia; Da Nang, Vietnam; and Kathmandu, Nepal. BHC is testing how to successfully apply urban planning approaches that improve the social determinants of health in complex systems.

BHC uses exploratory data collection, multisectoral engagement, and citizen participation. This systems approach informs project activities and the prioritization of city-funded workplans. The combined impact should improve the lives of all residents in these three cities and reduce preventable mortality.

BHC is using several tools and processes to create coalitions and organize its approach in each city. One key process is systems mapping to illustrate the key dynamics (patterns underlying problems) and define key entry (or ‘leverage’) points to address social and environmental determinants of health. Another way that BHC is documenting citizen experiences in each city is through Journey Maps.

The Journey Maps apply ‘design thinking’ approaches, which are often used to tailor products to intended customers; citizens are like customers in that they pay taxes or fees to use city services. BHC has adapted this tool to document the experience (or ‘journey’) of citizens who are trying to overcome one service issue in each city, over time, updated on a quarterly basis. The specific topics were identified during the first year of the project and fit within the larger context shown in the systems maps. BHC is using these Journey Maps to track citizen and city official perspectives, and to document change at the neighborhood level.

BHC is training people in each neighborhood to develop and use these Journey Maps and on grass roots advocacy techniques. By bringing the citizen experience directly to city planners, BHC hopes to better align municipal planning with community priorities such as safe water, clean air, hygiene, traffic safety, and other key components of healthy urban living.
Indore Journey Map #4 – Air Pollution

**YEAR 2** Air pollution levels have decreased in Indore since 2015, in part due to initiatives such as Swach Bharat that focus on improving the environment. Indore Smart City Development Limited has also made reduction of air pollution a priority. Specific initiatives have included mechanical street sweeping to decrease dust, free left loop roads to reduce traffic congestion at key intersections, and improved solid waste collection and disposal to reduce household burning of trash. As a result of these combined efforts, Indore was declared India’s cleanest city in both 2017 and 2018. However, during interviews conducted for BHC’s 2017-2018 Health Needs Assessment, citizens did not mention air pollution as a barrier to healthy living. BHC has followed this issue and its impact on healthy living over time in Indore, monitoring changes in citizen knowledge around the effects of air pollution on health, and the city’s continued efforts to improve air quality.

**ACTION:**

- Large screens displaying current pollution data were installed in 3 new locations — Patalia Square, Rajeev Gandhi Square, and the airport.

**ACTION:**

- Three additional air pollution measurement stations are now fully functional and data are now available.

**ACTION:**

- Display boards now include public awareness information such as health effects of pollution.

There are only 3 air pollution measurement stations in the city.

**KEY**

- Action
- Negative Action
- No Action
- Special Note
- Citizen/Resident
- Media
- Government Official
- Service Provider
- Data Point

**CURRENT POLLUTION DATA**

Current pollution data (left) and public awareness information (right) displayed on a large screen.
**Indore Journey Map #4 - Air Pollution**

**YEAR 3** Air pollution levels have decreased in Indore since 2015, in part due to initiatives such as Swachh Bharat that focus on improving the environment. Indore Smart City Development Limited has also made reduction of air pollution a priority. Specific initiatives have included mechanical street sweeping to decrease dust, free left loop roads to reduce traffic congestion at key intersections, and improved solid waste collection and disposal to reduce household burning of trash. As a result of these combined efforts, Indore was declared India's cleanest city in both 2017 and 2018. However, during interviews conducted for BHC's 2017-2018 Health Needs Assessment, citizens did not mention air pollution as a barrier to healthy living. BHC has followed this issue and its impact on healthy living over time in Indore, monitoring changes in citizen knowledge around the effects of air pollution on health, and the city's continued efforts to improve air quality.

**DATA POINT** Indore's PM2.5, NO2, and CO concentrations were 35, 51, and 52 percent lower during the first two phases of the lockdown as compared to the "Open" period (Jan 1st - March 26th).

**NO ACTION:** While air quality has improved during the lockdown, low levels of movement and industrial activity, no long term actions have been documented.

**NEGATIVE ACTION:** Two display boards were not functioning at the time of this assessment.

**ACTION:** Prior to their April deadline, oil companies have geared up to roll out blended large VI compliant fuel in the state. Air pollution levels are down due to national lockdown response to COVID-19.

**NEGATIVE ACTION:** Government is displaying air pollution data in very important to aware people of Indore that we should make our city healthy also. We need to take lesson from Delhi and should try to use electric vehicle or public transport.

**ACTION:** We hope to see major reduction in pollution levels with the usage of upgraded fuels as these emission norms are set to get stricter.

**DATA POINT** Indore’s PM2.5 concentrations were 58% lower in the week after the national lockdown as compared to the quarterly average PM2.5 previous to the lockdown (Jan 1st - March 26th).

**NO ACTION:** Air pollution is also low.

**NEGATIVE ACTION:** Due to lockdown, emission of greenhouse gases is very low and emissions from traffic and industries is almost zero in the city. In the River Khan and Saraswati, oxygen levels rose to 5 from almost zero. The quality of bodies of water in Indore has improved.

**DATA POINT** Indore's PM2.5 concentrations were 58% lower in the week after the national lockdown as compared to the quarterly average PM2.5 previous to the lockdown (Jan 1st - March 26th).

**NO ACTION:** While air quality has improved during the lockdown, low levels of movement and industrial activity, no long term actions have been documented.

**NEGATIVE ACTION:** Display screens now also include suggestions of small actions citizens can take to reduce pollution.

**ACTION:** "I am traveling daily to my office by scooter and I am not feeling air pollution. Indore is a clean city and air pollution is also low."

**Display screens now also include suggestions of small actions citizens can take to reduce pollution.**

"Due to lockdown, emission of gases is very low and emissions from traffic and industries is almost zero in the city. In the River Khan and Saraswati, oxygen levels rose to 5 from almost zero. The quality of bodies of water in Indore has improved. Noise pollution has also reduced during this period, and a decrease in temperature due to increased greenery has been noted. Normally the temperature rises to 46 degrees however it has not crossed 42 degrees yet. The Deputy Commissioner of the Garden Department, Municipal Corporation, Indore and the Chief Chemist, MPPCB have validated these outcomes of the lockdown.

- Hindi newspaper Dainik Dabang Duniya, 5 June 2020
How Does This Story Connect to the Indore Systems Map?

Loops 14 (Clean Indore) & 17 (Community Priorities)

The Clean Indore loop (14) states that when city health or environmental improvement initiatives are implemented well and begin to achieve positive outcomes, citizens experience personal improvements to their quality of life. They may also feel pride in the accomplishments of their city and want to be a part of it. As a result, they are more willing to support program efforts and adopt recommendations. When the value of a program is recognized, community participation accelerates the ability of programs to achieve their impact goals, resulting in greater recognition and success for that initiative, and therefore pride in that community. As a result, they are more willing to support program efforts and adopt recommendations.

Example: Under the Clean India Mission, effective solid waste management (collection, disposal and use in energy), better water supply, and other measures to improve the environment have led to measurable reduction in levels of air and water pollution and visibly improved sanitary conditions. BHC analyzed the annual average concentrations of sulfur dioxide, nitrogen oxides, and particulate matter (PM2.5 and PM10) from three air pollution measuring stations in Indore city during 2013-2017. A declining trend was observed in PM10 and PM 2.5 concentrations, possibly due to various measures taken by the Municipal Corporation and Indore Smart City Mission.

However, issues arise due to a lack of citizen knowledge, especially among vulnerable populations, regarding air pollution and its impact on human health. The Community Priorities loop (17) explains that when the community has a limited understanding of good health and safety practices, or these practices are not feasible in their circumstances, their demands and behaviors may not align with building a healthier community. Building a healthy city is a longer-term goal and can be trumped by short term goals like getting food to eat or being paid for work. Citizens are not prioritizing healthy and clean air because the efforts by the government have not been recognized. Without awareness raising, these communities will continue with unsustainable practices, like burning coal. In the absence of community awareness of air pollution, it is less likely that they will have the capacity to participate in community improvement efforts. Even if they can engage, they will likely have a limited understanding of what is needed to build a sustainable healthy community, and will focus their demands on short term goals.

Example: Indore has set up five ambient air quality monitoring stations at various locations. In the absence of much information about the Air Quality Index and its health implications, it might be difficult for citizens to participate in efforts to reduce air pollution and related impacts on human health in the city. This issue needs to be addressed by continuous public awareness campaigns for behavior change.