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POPULATION HEALTH THROUGH INCLUSIVE URBAN PLANNING:

HEALTHIER COMMUNITIES AND SUSTAINABLE URBAN DEVELOPMENT IN INDIAN CITIES

by Shriya Malhotra*

“If cities are the ‘defining artifacts of civilization’ a nation may now be judged by the health of its urban majority.”
Christopher Dye¹

INTRODUCTION

The definition and importance of urban public health has evolved in recent years, both in developed and developing countries. Once dominated by biomedical statistics and epidemiology, the public health field is shifting to emphasize environmental and social determinants of population health. Amartya Sen, in his keynote address to the World Health Assembly, emphasized the importance of health as a foundation for economic development and community growth.² This new perspective on health, as it relates to urban populations and the economy, is gaining momentum.

Public health, otherwise referred to as population health, is an immediate issue facing many developing nations with growing populations. For instance, “the accumulated urban growth of [the African and Asian] regions during the whole span of history will [double] in a single generation. By 2030, the towns and cities of the developing world will comprise [eighty] per cent of urban humanity.”³ Populations in Indian cities are expanding in terms of their real numbers and as a proportion of the national total. The Indian government estimates that by 2050, India’s urban population will grow to 820 million, compared to 285 million in 2001.⁴

Population growth coupled with movement from rural areas to urban centers in India is occurring for several reasons: migration for greater income, employment opportunities, and an economic shift away from the former agricultural emphasis.⁵ This historic shift has been addressed through policies via the nationally coordinated and municipally implemented Jawaharlal Nehru National Urban Renewal Mission (“JNNURM”). The scheme provides funds for urban renewal from the national government and currently funds urban development projects in sixty-five Indian cities. But coverage by the JNNURM is inadequate given that 4,378 urban agglomerations and towns exist in India.⁶ Apart from presently being limited to just a few cities, the JNNURM also does not fund any health related projects. It is therefore necessary to explore the use of urban planning as a tool that can promote improved urban public health, within a broader context of sustainable development. Within and beyond India, integrated urban planning could provide alternative development strategies in the diversity of contexts,

experiences, and degrees of urbanization that exist in developing countries.

Before examining the theoretical links between urban planning, population health, and sustainable development, it is important to define the terms used in this article. Urban planning is the design and organization of urban spaces and activities, i.e. how cities and towns function, based on the environment, zoning, infrastructure, and services.⁷ Integrated urban planning is increasingly recognized as a means to promote resilience for population health which includes: targeting the location of pharmacies, clinics, hospitals, emergency ambulance routes; promoting safety and reduced occupational hazards in the city; preventing noise pollution for mental health benefits; promoting healthy buildings and habitats that are hygienic and clean; and maintaining green spaces and urban biodiversity.

Public health is the science and art of dealing with the health of populations and communities by preventing disease, prolonging life, and promoting health through community planning and by educating the population.⁸ It entails protecting and improving the health of a community through a combination of primary preventive methods such as health education and health services. Public health differs from medical health because of its focus on community health, rather than on individual well-being.

Sustainable urban development entails sustainable services delivery, planning, environmental, and socioeconomic policies. In the Indian context, sustainable urban development means several things: sustainable provision of basic urban services, governance, and inclusive development that targets the needs of vulnerable populations.⁹ With decentralized governance and a shift towards prioritizing the needs of urban populations becoming a reality in the Indian political arena, now is the time to explore alternative strategies that reinforce sustainable development policies.¹⁰

These components are all interrelated, which means urban public health should be examined within the web of legal processes, governance, and policies that support a broader notion of sustainable urban development. The health of a city is reflected

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in the health of its environment and inhabitants. Urban public health requires involving multiple stakeholders, and establishing benchmarks that will direct urban planning in the way that is most beneficial to populations and their health. Viewing sustainable development in terms of health impacts is a more tangible way of addressing urban issues for policy makers and urban communities.

Despite having beneficial policies in place, India's decentralizing state governments face issues of enforcement and delegation of power, which in turn result in ineffective implementation of urban public health policies.¹¹ With infrastructure projects driving the growth of cities, sustainable development policies could address and improve the health and well-being of urban inhabitants. Spatial planning is directly linked to public health practicalities such as sanitation and solid waste management while transportation options and physical activities highlight the link between location and health. These policies have not yet been effectively implemented in urban slums, for instance, which are comprised of poorer populations who generally face several disabling public health issues.¹² Environmental and social determinants of health are at the forefront when it comes to cities and spatial inequalities relating to health.

On its path towards sustainable development, India faces several legal and policy challenges. The "urban" dimension of health and sustainable living is now more important than ever before because fifty percent of the world's population now resides in cities.¹³ Although cities occupy a small portion of a country's landmass, they consume large quantities of energy, which result in higher concentrations of pollution that adversely affect public health.¹⁴ Often the spatial organization of many of these modern cities offers little consideration of human behavior and does not promote active and healthy lifestyles. Urban transformation is an opportunity to create increased awareness of the link between individual, community, and population health. At the same time, the shift highlights the importance of environmental and socioeconomic determinants to human well-being. This article will examine the historic trajectory of cities and their development impact on population health. It will then briefly discuss urban development in New Delhi with a focus on examples that link planning and population health.

A HISTORY OF URBAN PLANNING AND PUBLIC HEALTH IN THE DEVELOPED WORLD

In terms of legal, policy, and related processes, exploring and understanding the relationship between urban planning and

public health is crucial in promoting strategies for sustainable development. Challenges facing several developing countries highlight the concern of repeating the mistakes of developed countries, which have resulted in environmental and ecological degradation.¹⁵ Developing world cities in particular are adding populations exponentially;¹⁶ apart from the scale of their populations, these cities face similar health issues seen in eighteenth and nineteenth century Europe.¹⁷ For example, cholera outbreaks, chronic dysentery, as well as acute health issues related to water quality and the spread of infectious diseases due to population density and overcrowding often result from a lack in infrastructure, services, and sanitary habits.¹⁸

The field of public health emerged from the West in the post-Victorian era dominated by the concept of hygiene; it later evolved in to being dominated by the medical field.¹⁹ Evidence of the relationship between urban planning and public health in Europe dates back to the eighteenth and nineteenth centuries

during the construction of urban centers that eventually became cities.²⁰ John Snow's cholera map is an example of how important targeting and understanding of urban infrastructure is to promoting public health.²¹ Similarly, Charles Booth's poverty map revealed the spatial segregation of poorer households.²² As a result of these simple visual and spatial analyses of urban epidemics and poverty, the next generation of city planning more appropriately targeted infrastructure and services in the city.²³

Epidemics in early twentieth century cities spread rapidly and it is believed that the spatial layouts of these industrial cities were responsible for the congestion and poor health of urban communities.²⁴ As a reaction to the problems arising from overcrowding in high-density buildings and mixed land use environments, post-industrial world cities sought to encourage a more expansive urban population model.²⁵ The development of U.S. cities and the phenomenon of suburbs changed land use from a congested urban framework towards a less dense "sprawl with satellites" urban model. This has been problematic when mimicked in developing countries, because postindustrial public health challenges continue to exist and persist.

During the twentieth century in the United States, urban sprawl and the emergence of "suburbia" began to define cities. This coupled with car-centric mobility that discouraged physical activities like walking and biking, have contributed to obesity rates of epidemic proportions.²⁶ Because suburbs and modern life are constructed around the use of vehicles, people incorporate less physical movement into their daily lives.²⁷ The American obesity "epidemic" is directly linked to two modern

The "urban" dimension of health and sustainable living is now more important than before because fifty percent of the world's population now resides in cities.

urban phenomena—a lack of walking²⁸ and the industrialization of foods.²⁹ There are several cities like New York, specifically Manhattan, where residents have been found to have lower heart disease rates and lower levels of obesity, because the urban environment encourages individuals to walk.³⁰ Since 2007, the mayor of New York City, Michael Bloomberg, has implemented a multi-pronged health plan targeting improvements in nutrition, pedestrian facilities, and increasing bicycling routes, to better the environment and human health.³¹ New York City is a good example of urban planning interventions that work to promote population health.

It is evident from cities in Europe and the United States that development and natural environments require simultaneous planning and management for public health. However, their models for planning cannot be mimicked as Indian cities face several additional challenges of different scales than these cities did or do. Nevertheless, experiences within and among cities need to be shared for a sustainable urban future. Exploring the links between urban planning and population health to inform appropriate policies may help inform the current lapses seen in the health and well-being of Indian communities and India's urban populace.

Urban sustainability includes looking beyond the built and natural environment, and towards related issues of governance and services, while measuring outputs in terms of health. The trajectory so far in India's development have resulted in numerous imbalances which policies have sought to keep up with: rural vs. urban emphasis; private vs. public coverage; preventative vs. curative; along with multiple existing health care systems that fail to link individual behaviors and community health to basic hygiene and sanitation. In doing so, emphasis must be on urban health centers and specific health vulnerabilities, which vary by geographic location, population density, and many other factors.

Developing world cities should take note of the decisions made in post-industrial developed cities. The resulting sprawl and commercialization of cities³² on their path to economic liberalization in the developed world should not be emulated for sustainable urban development in developing world cities. Regrettably, development to date in major Indian cities like New Delhi seems to reflect this post-industrial trend. An emphasis on population health oriented planning processes that balances human and environmental priorities appears to be lacking in policy and needs to be established. A balanced ecosystem or biosphere approach may hold the key to examining the link between urban planning and population health. Smaller cities like Surat in

Gujarat appear to have several examples that would benefit sustainable urban development while targeting health—given their focus on public health and urban renewal in the last few years.³³ Clearly, the trend is changing for the better—however without appropriately prioritizing and targeting population health needs in an inclusive manner, Indian cities will face several obstacles on their path towards sustainability. The focus needs to be on addressing urban public health requirements and orienting policies towards improved health impacts, services, and infrastructure for urban communities.

PUBLIC HEALTH SNAPSHOT OF INDIA

“The only way to cope with the developing world's overwhelming problems is to build effective public health systems. Such devices monitor the health and well-being of its citizens, identify problems in the environment and among the members of its community, and establish public health practices to address these problems, including the problems of whether proper health care is accessible to all, rich or poor.” Laurie Garret³⁴

Public health as a formal concept and, with recent advances in technologies, is relatively new in India with public health services being established to monitor epidemiology and environmental risk factors for health in the last decade.³⁵ The integration of western medical support and other technologies used for

population health analysis and diagnosis are just entering India, and may run parallel to urban planning processes.³⁶ It is undeniable that to address global public health issues, one needs basic public health parameters that transcend borders. But first, cities need to address the immediate health risks and concerns posed by the city to their populations—recurring epidemic outbreaks along with unsafe buildings and infrastructures that lack adequate lighting, recurring epidemic outbreaks and footpaths.

The importance of an integrated and holistic public health system for India should not be underestimated. An expanded definition of public health would overcome several obstacles faced in Indian cities by linking concepts that are often considered distinct. One concept is individual and population health. Individual behaviors ultimately drive and affect community health, as does the built environment. The presence of walking trails, bike paths, local food systems, and trees, for instance, can promote well-being and better health outputs.

Population health relates to the environmental, economic, and social determinants of health—for instance, being surrounded by unhygienic conditions. The mitigation of these

Challenges facing several developing countries highlight the concern of repeating the mistakes of developed countries, which have resulted in environmental and ecological degradation.

public health risks requires shifting away from a western medical science approach of curing and more towards primary preventative health measures. In the Indian environment, public health must incorporate alternative systems of health such as knowledge stemming from Ayurveda,³⁷ Homeopathy,³⁸ and other traditional science systems. Health education with literacy and non-literacy components aimed at both those who are literate and illiterate can help to strengthen primary prevention.

To help facilitate primary prevention, India's public health program requires a holistic approach from various dimensions including nutrition, a change in disease burden, and the effect of urban environmental health factors. It also needs to incorporate indigenous and traditional sources of knowledge to inform well being of urban populations. Although life expectancy in India has been increasing, so have incidences of cardiovascular disease—thirty-eight million people were affected in 2005, and the number is estimated to rise to sixty-four million by 2015.³⁹ The benefits of urban and “modern” living have come with its own lifestyle and environmental challenges to health. An aging population, combined with lifestyle related risks factors, has resulted in higher rates of diabetes in developing countries as compared to developed nations.⁴⁰ The burden of disease has been shifting with rising economic growth in India, resulting in malnutrition and obesity rates increasing at the same time.⁴¹

Other environmental health factors such as air pollution and water quality continue to be a problem in the urban environment, affecting both urban services and the health of urban populations. Numerous water borne epidemics persist, such as cholera, tuberculosis, and dysentery, and seasonal diseases such as malaria and dengue.⁴² Although dengue fatality rates have been declining in most countries because of better access to health care and timely case management, dengue outbreaks continue to rise in India.⁴³ Reasons for persisting issues like the plague and water borne diseases include water and sanitation. Almost all of these issues are poverty related or stem from unclean water and sanitation facilities. In India, the lack of sanitary drinking water and adequate solid waste management both contribute to the problem.⁴⁴

These environmental conditions are often predicated by one's socio-economic status, which determines the quality of health of communities and individuals. Thus, a person's health is contingent on where she or he lives. For example, in the southern coastal Indian state of Kerala, which has seen high investments in health and education since the 1970s, the mortality age is higher than in other parts of the country.⁴⁵ However, it is within the cities that the spatial disparities come to the forefront. Sites where marginalized and vulnerable populations reside are also often sites with poorer environmental health and population health, often as a result of living environs. Slum dwellers in cities face a drastically different quality of life than rich urban inhabitants. Gated communities in New Delhi have access to expensive, modern hospitals with emergency treatment and medical services while services for the urban poor or slum dwellers are comparatively rare.⁴⁶

India is also witnessing a shift from extremely high occurrences of communicable diseases such as HIV/AIDS, tuberculosis, malaria, and influenza⁴⁷ to non-communicable diseases⁴⁸ pertaining to nutrition. A lack of proper nutritional knowledge affects health, as does the availability of accessible clinics and health services. India demonstrates a troubling case of rising obesity as well as malnourishment.⁴⁹ Childhood malnutrition is linked with maternal mortality, which in turn, is linked to urban poverty.

However, many appear to see addressing population health dilemmas as separate from protecting the environment and creating habitats. This is unnecessary since addressing the needs of urban ecosystems holistically is a more appropriate approach for environmental policy makers and development specialists. In the last few years, Indian policymakers have devised several policies, which can shift the trajectory of its cities towards sustainability.

In 2008, India launched the National Urban Sanitation Policy (“NUSP”) through the Ministry of Urban Development with a goal of urban sanitation in India.⁵⁰ So far, it has ranked the major Indian cities according to parameters including the absence of visible outdoor defecation, measured ratios of human excreta generated with that which is safely collected, and the proportion of treated wastewater that is recycled.⁵¹ It will now be up to state and city government agencies to prioritize, coordinate, and improve sanitation in these cities. The goal is to make all Indian cities sanitized by providing technical and financial assistance to the cities in order to promote “healthy and clean” cities.⁵² This could be crucial in the context of the National Mission on Sustainable Habitats (“NMSH”), which was approved in 2010 by India's Prime Minister Council on Climate Change.⁵³ It will soon be up to Indian cities to effectively implement these nationally funded priorities to improve their cities with a view to the wellbeing of the people living in them.

Effective urban and environmental planning requires addressing human and environmental health in a manner that does not promote one at the expense of the other. The need for integrated approaches regarding the creation of sustainable cities and services is evident in problems, such as sprawl and inadequate environmental planning. The idea of sustainability is not static and means different things depending on the context, which is evidenced in the case of Indian cities.

CASE STUDY OF PLANNING AND POPULATION HEALTH IN NEW DELHI

India has witnessed rapid economic growth and huge influxes of money as a result of liberal policies and its impact has been manifested in India's capital city, New Delhi. New Delhi and the National Capital Region (“NCR”) have burgeoned, engulfing the surrounding agricultural land to accommodate urban populations. Land use patterns in the city changed drastically between 1998 and 2001, with agricultural lands converted into residential and commercial spaces.⁵⁴ Designation of special economic zones (“SEZs”) and distribution of financial incentives have been used to establish businesses across the

city with high-rises erected in the suburbs, though not on the same scale as in the developed world.⁵⁵ In addition, lands have been purchased in adjoining states to accommodate the growing population.⁵⁶ Transportation systems have also been changing with the addition of flyovers (bridges). With the advent of these developments however, there has also been an influx of automobiles and increased levels of air pollution, as well as increased consumption and waste generation because of modern lifestyles.

Alternatively, issues of resource scarcity are likely to arise in the high rise, commercialized suburb of Gurgaon. The twenty-four hour energy guzzling malls will eventually result in water and electrical shortages in this arid region unless sustainable policies and practices are implemented. Similarly, the NCR has expanded into the state of Uttar Pradesh and its agricultural land in Noida.⁵⁷ Noida's rich, fertile fields, which were once sources of food for the city's inhabitants are now being developed for residential use.⁵⁸ There seems to be little awareness that adding populations to these satellite suburbs, with their already inadequate infrastructure, will prove unsustainable and problematic in the long run. The first step must be to manage and plan the seemingly unlimited urban expansion or at least tailor the expansion in a sustainable way to reduce negative health impacts on the population. The fact that New Delhi's forests and wildlife are constantly being displaced has pitted several animals such as monkeys against the city's residents.⁵⁹ This aptly illustrates problems that underlie rapid and unplanned development.

New Delhi's NCR faces logistical and management challenges as it struggles with effectively implementing city level policies since there are several agencies that are competing for jurisdiction, yet lack effective coordination amongst themselves. This is however beginning to change.

The decentralized public health delivery services need to be strengthened. In April 2010, New Delhi's government cabinet agreed to introduce Public Health Standards for Primary Urban Health Centers ("PUHC") in the city.⁶⁰ For every 50,000 people, one health care unit would be identified, strengthened, and upgraded to a PUHC.⁶¹ However, data gathering and sharing must also be strengthened. Detailed maps identifying dispensing areas, pharmacies, clinics, and hospitals would be beneficial. No effective ambulance routes exist, so in the case of an emergency the reaction time is inadequate. Municipal oversight of constructed areas is also necessary to ensure that stagnant water does not pool and become a breeding ground for mosquitoes. Access to clean water facilities, while necessary, must also ensure that wastewater remains treated and separate from drinking water to prevent cholera and dysentery outbreaks. Limiting air pollution emissions and noise pollution is also a part of the equation, because they can negatively affect mental health. These are just a few examples of how urban planning and population health are linked. Although progress of effectively instituting measures that might address public health is being seen in cities like Surat in Gujarat, this is still not the case in New Delhi.

Unfortunately, a "master plan" system that promotes sustainability, as currently exists, is difficult to implement in a city with such a long and complex history as New Delhi. With so

many structures built, demolished, and rebuilt, the city is comprised of innumerable layers of different ages and qualities, which pose as obstacles to holistic approaches and revitalization projects. The risk is that shortsighted planning decisions will compromise sustainability by negatively affecting the needs and requirements of current as well as future generations and their health. Thus, planning requires unique and thoughtful innovation. There needs to be awareness regarding the impact of construction on public health, such as construction that fosters the use of automobiles, which are detrimental to public health because of their emissions and the sedentary lifestyle they promote. Access to fresh and local foods will also become an issue as the city continues to expand haphazardly, engulfing surrounding agricultural lands, thus requiring transportation of food from longer distances with additional preservatives.

The public health challenges faced in Indian cities are innumerable and complex—but policy makers are aware and beginning to address these issues. Ultimately, however the responsibility and effective implementation lies with the cities themselves. This is why inclusion and participation, especially in the Indian context, are crucial—but is also a practical challenge given their numbers.

SUSTAINABLE URBAN DEVELOPMENT: INCLUSIVE PUBLIC HEALTH

Slums or informal urban poor settlements fall along the blurry divide between urban planning and public health lapses. Basic urban services are seriously lacking for New Delhi's urban poor and slum-dwellers, in terms of access to power, clean water, health facilities, sanitary environments, and sewage management. They face multiple challenges as a result of the various facets and cyclical nature of poverty.

The slum population of New Delhi accounts for almost twenty percent of the total urban population.⁶² The lack of a hygienic and sanitary living space, as well as services and infrastructure, poses several issues for slum dwellers. Un-sanitary and un-hygienic conditions can limit slum dwellers opportunities and highlights the multidimensional nature of urban poverty. Environmental risk and health factors are high, as are the social determinants negatively affecting health. As a result, slum-dwellers face perpetual health costs and productivity inhibitors. They have no proper place to live; the informality and often illegality of their living areas presents a challenge to policy and lawmakers.

Although the "informality" of slums poses a problem to legislation and policy enforcement, formalizing these living areas is not always the best solution. The first step should be to ensure their consistent access to several (quality) basic services including water and other basic necessities. The needs of slum dwellers are often ignored or over-shadowed by disparate populations and their requirements. However, recognition that both populations share the same living area may be a great motivation for disparate populations to address the needs of slum dwellers. Health and opportunity costs borne by families are examples of hidden disease burdens, particularly in developing countries

such as India that lack specialized health services for poor populations.⁶³ Participation by poorer populations is required to guide the trajectory of the city. One solution is to strengthen rural and urban linkages so that populations migrate less. Another necessary measure is access to resources including basic necessities so that slum dwellers are not quite as vulnerable. Helping the poor invest in health and education is another. Urbanites could also learn about sustainable urban living by studying these slums. Slum dwellers use minimal resources, recycle out of necessity, and have a minimal impact on the environment.⁶⁴

These current challenges in Indian cities can be addressed through integrated urban planning. Reducing air emissions promotes better lung function and general health, while better planning of land use can prevent malaria and dengue. For example, the negative publicity surrounding the Commonwealth Games⁶⁵ illustrates the city's lapses in planning for population health and a lack of coordination or priority for popular inclusivity or participation.⁶⁶ While the Games will result in an advanced metro system and several infrastructure upgrades, in the long run, they have come at the expense of the poor, rural laborers, and slum dwellers whose habitats have been shifted or hidden.⁶⁷ An estimated 2,500,000 poor residents in the city were displaced as a result of these games.⁶⁸ Concurrently, the city faced a recurrent dengue epidemic.⁶⁹ To prevent further such occurrences, zoning and planning distinctions need to be in place to allow slum dwellers to participate in the urban renewal processes while maintaining facets of history, culture, and the environment. Inclusive planning is a crucial component of sustainable urban development and perhaps the opportunities presented by global games could focus on improving and strengthening local public health systems.

SOME RECOMMENDATIONS: LEGAL AND POLICY INTERVENTIONS

Cities ought to be approached as complex urban ecosystems comprised of interrelated built and natural environments, with direct links between policies and urban participants. However, cities also need to strengthen and target the provision of services such as health and education, which are the basis of human development according to Amartya Sen, through infrastructure, legal, and policy processes. Health and education combine to form the basis of public health and therefore need to be prioritized. They need to look towards addressing the plight of migrants, because they too are a part of urban spaces, and towards inclusive policies that address the needs of other vulnerable populations. Environmental and ecological concerns ought to be balanced with human requirements through a holistic, multidimensional approach that looks at the relatedness of these different factors. Indian cities do not need to follow the developed world's urban ways and should instead seek to forge a new path of development that other countries will want to replicate.

Linking individual behaviors with community and population health is a crucial first step. Communicable diseases turn into epidemics when populations are uninformed or unable to achieve the benefits of hygiene, clean water sources, and preventative health services, including disease testing and immunization.⁷⁰

With increasing longevity and recognition of urban environmental health factors, the prevention of lifestyle diseases requires more attention. Health awareness and education should therefore figure prominently in policy-making at the city level.⁷¹

Urban public health and individual health determinants are interrelated. Inadequate child nourishment negatively affects adult health and often stems from nutritionally deprived mothers.⁷² Immunization programs reduce inequality in childhood mortality and maternal nutrition can reduce inequalities in other aspects of health and wellness. Free checkups from easily accessible clinics are also important. Nutrition information and education needs to be addressed in India—a governmental body akin to the U.S. Food and Drug Administration (“FDA”) would help ensure standards are set and met, while addressing the growing dual burdens of nutrition and disease.

Social determinants of health must also be addressed, particularly in India, with a large population of ever increasing urban poor.⁷³ Population health relates to poverty and urban planning. The poor generally live in the least environmentally healthy environments and are often found inside informal settlements or dirty, overlooked urban spaces.

Environmental determinants of human and community health need to be prioritized and do not have to be seen as separate or as a zero-sum game. Both are mutually beneficial if the approach is long-term oriented, targeting the needs of future generations with a holistic ecosystem or biosphere oriented approach, which does not compromise the needs of one for another. Clean water is essential for healthy living, but is reliant on infrastructure and policies that enable access in urban areas. Unsafe water, poor sanitation, and hygiene are major contributors to high mortality in many developing countries.⁷⁴

Primary preventative strategies like health education and awareness, nutrition, vaccines, and sanitary water are all basic strategies in facing the challenges of implementation, and are required for effective interventions in urban poor populations.⁷⁵ This is in addition to focusing on how planning and services can be reoriented for human needs that also consider the importance of health. Thus, it highlights a crucial link between health and education services for development as well as opportunities for providing them—which perhaps exist more in cities.

CITY-LEVEL POLICY AND PLANNING RECOMMENDATIONS

- Encourage and promote healthier human behaviors and mental health through the planning and construction of cities by ensuring adequate green spaces, walk and bicycle paths, access to clean water, local food systems, public restrooms, recycling, and composting.
- Ensure legal and policy provisions that provide services—such as health services access—for poor and vulnerable populations while also allowing them to have a voice to contribute to sustainable and environmental practices.
- Overlay present and future maps that integrate land use and urban transportation policies with a public health outlook to design services and infrastructures that meet anticipated population density and growth in different parts of the city.

- Periodically re-examine and refocus the relationship between rural and urban areas to ensure they are evolving in a sustainable manner

Bottom up change should be supported by focusing and prioritizing health at the neighborhood or community level with an emphasis on local foods, access to resources, and other necessities. This might include working with specific settlements, slums, and communities. Participatory maps, spatial representation, analysis of health, and environmental concerns could highlight policy lapses, areas requiring resource allocation, as well as different population and environmental health determinants that result in disparity within cities. This also supports engaging and educating populations to create livable urban environments and strengthen their communities.

City planning should not be primarily for the construction of buildings and the use of automobiles, but for the populations and communities inhabiting urban spaces. Indian policy makers need to reorient their approaches that look between and amongst buildings and focus on the requirements of urban communities. Policies and legal provisions must address and reinforce the multiple dimensions of urban public health by involving the public, ensuring engagement and participation, and promoting flexible yet realistic incentive and disincentive systems. India needs to target the creation of “energetic cities” i.e. the promotion of active living and healthy lifestyles as well as urban environments that promote low waste and energy use, and can generate their own energy.

CONCLUSION

“City planners must weave a complex, ever-changing array of elements into a working whole: that is the perennial challenge of city planning.”⁷⁶

City performance can be measured via five dimensions: “vitality, sense, fit, access, and control,” combined with “efficiency and justice” to guide them.⁷⁷

[A] vital city successfully fulfills the biological needs of its inhabitants, and provides a safe environment for their activities. A sensible city is organized so that its residents can perceive and understand the city’s form and function. A city with a good fit provides the buildings, spaces, and networks required for its residents to pursue their projects successfully.⁷⁸

These suggestions echo in both developed and developing countries. Livable, sensibly planned cities in which people participate to address their own well being are a test of humanity’s ability to formulate and manage the future.

Urban planning directs how communities interact through the designation of land use and transportation. It also determines the layout for buildings, green spaces, clinics, and the location of different health services—as well as determinants. Urban planning therefore promotes or hinders population and individual health. The proximity of urban communities to trees or even highways can affect health. Looking at sustainable development through the lens of health closes the gap by linking the health of individuals, populations, and the infrastructure together.

As mentioned above, the health of the environment and of its constituent communities does not have to be a zero-sum game. Countries need to explore how the built and natural environments can promote symbiotic relationships with human communities. Health outcomes are an appropriate measure of urban quality of life. Adding sustainable urban development to the equation of integrated urban planning and public health systems is important to ensure that the wellbeing of future generations is adequately met.

Indian cities have some ground to cover before the built environment and urban ecosystems begin to promote improved health for its urban constituents. Steps to ensure improved health in the future are contingent on effective planning and decision coordination made now. Examining the intersections of planning and public health in urban spaces is a crucial step towards doing so. Outlining responsibilities and integrating resilience and flexibility into all aspects of the city is crucial. Decentralized governance operating through various local bodies, with specifically allocated responsibility and transparency allowing for the setting of legal standards while ensuring that policies are targeted at the correct provisions, will be crucial for ensuring our sustainable urban future.

City planners, policy makers, and inhabitants need to work together to integrate their requirements with the environment and enable vulnerable populations to participate in the design and development of the city. The true test of a city is the health and the wellbeing of its inhabitants. Indian cities need to rise to meet the challenge of not only setting sustainability benchmarks but also providing strategies and examples for other cities throughout the world to follow. This is possible by reorienting sustainable development to prioritize the health impacts on cities. Despite these challenges, Indian cities seem to be on the right track, if policies are any indication. Moving from theory to practice however remains to be seen. Policy makers need to focus on involving communities to create their own unique and alternative pathways to sustainable development that promotes their health and wellbeing, without compromising that of the natural environment.



Endnotes: Population Health through Inclusive Urban Planning: Healthier Communities and Sustainable Urban Development in Indian Cities

¹ Christopher Dye, *Health and Urban Living*, 319 SCI. 766, 768 (2008).

² See generally Amartya Sen, *Health in Development*, 77 BULL. WORLD HEALTH ORG. 619 (1999), [http://www.who.int/bulletin/archives/77\(8\)619.pdf](http://www.who.int/bulletin/archives/77(8)619.pdf) (proposing that one of the key roles of development is to liberate us from the cycle of suffering from avoidable illnesses and “escapable mortality”).

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- ⁵ See THE ENERGY AND RESOURCES INSTITUTE, AN EXPLORATION OF SUSTAINABILITY IN THE PROVISION OF BASIC URBAN SERVICES IN INDIAN CITIES 319-20 (2009), http://www.teriin.org/files/Sus_Cities_Report_20090424151451.pdf [hereinafter BASIC URBAN SERVICES] (noting that paid employment is a reason for people to move into city slums).
- ⁶ Shriya Malhotra & Divya Sharma, *Integrated Urban Planning Processes for Resilience and Low Carbon Development*, in CLIMATE RESILIENT AND SUSTAINABLE URBAN DEVELOPMENT 11, 16-17 (The Energy and Resources Institute, eds., n.d.), <http://blogs.dfid.gov.uk/wp-content/uploads/2010/09/sustainable-urban-development-background-paper.pdf>.
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- ¹⁴ BASIC URBAN SERVICES, *supra* note 5, at xix.
- ¹⁵ See *Environmental Problems and Developing Countries*, ALL BUSINESS, (June 1, 1992), <http://www.allbusiness.com/public-administration/national-security-international/312961-1.html> (noting the environmental degradation that has occurred in developing nation's wetlands and forests).
- ¹⁶ See WORLD POPULATION 2007, *supra* note 3, at 6 (stating that "[t]he urban population of Africa and Asia is expected to double between 2000 and 2030" while similar growth for Latin American and the Caribbean is expected to be less drastic).
- ¹⁷ See *id.* at 7 (stating that the urbanization and industrialization of the western world was comparatively gradual and involved far fewer people).
- ¹⁸ See generally ERACH BHARUCHA, TEXTBOOK FOR ENVIRONMENTAL STUDIES FOR UNDERGRADUATE COURSES OF ALL BRANCHES OF HIGHER EDUCATION 214-48 (2004) www.ugc.ac.in/policy/env/Chapter7.pdf.
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- ²⁵ *Id.*
- ²⁶ *Id.* at 44-46, 184-87.
- ²⁷ *Id.* at 2-3.
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- ²⁹ Press Release, New York City Governor, Mayor Bloomberg and Commissioners Burney, Farley, Sadik-Khan and Burden Release Design Guidelines To Promote Physical Activity And Health In Buildings And Communities (Jan. 31, 2010), <http://www.nyc.gov/follow/NewsAndPressReleases> (follow "January 2010" hyperlink; then follow "January 31, 2010" hyperlink).
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