

Urban framework as an approach towards health equity in informal settlements

D. El Rifai, G. Mosaad & Y. Farghaly

*Department of Architectural Engineering and Environmental Design,
AAST, Egypt*

Abstract

The following research study is carried with the objective of examining the most critical health and livelihood issues facing residents of informal settlements. It is worth noting that informal settlements now house a substantial proportion of the urban population in Africa, Asia and Latin America. A premise is then set to help identify interventions to improve health in the foregoing areas. The review begins by discussing urbanization as a major public health challenge for the 21st century, as urban populations are rapidly increasing, basic infrastructure is insufficient and social and economic inequities result in the formation of informal settlements. People over there suffer disproportionately from ill-health throughout their life-course and are more likely to experience disease, injury and premature death and ill-health may combine with poverty to entrench disadvantages over time. The health of both individuals and communities is affected by built and social environments surrounding them as evidence in this study suggests, and these settlements are plagued by profound environmental hazards and ingrained deprivations that cannot be suitable for a healthy life. The study further tackles in depth the factors which exacerbate ill-health in informal settlements and encourages prevention and early intervention as measures more effective than exhorting individuals to change their behaviour. This is due to the fact that changing behaviour becomes more farfetched in the light of their surrounding work and study environments. The concluding section examines a range of urban interventions to be taken into consideration when trying to upgrade and achieve health equity in these areas.

Keywords: urbanization, urban settings, informal settlements, ill-health, health determinants, health inequalities, Urban HEART, urban framework.



1 Introduction

In the year 1990, less than 40% of the world's population lived in cities. Moving to 2010, more than half live in cities, and by 2050, 7 out of every 10 people will live in urban areas. Most of this tremendous growth is occurring in developing countries, where government authorities are mostly shocked by the rapid population boom, and are struggling to keep pace.

As the world is moving towards urbanization, the influx of people living in urban developments, or cities, becomes one of the most important global health issues of the 21st century. Cities offer unique opportunities for residents to benefit from education, health and social services and to optimize their health and quality of life. At the same time environmental and economic downturns are fuelling a range of health problems. As a result of the overwhelming speed of growth, health services in many urban areas are poorly equipped to manage current and emerging public health threats.

Today, around one third of urban dwellers live in urban slums and informal settings, more than 90% are located in the developing world, where pockets of extreme deprivation are found in tandem with extreme wealth. In those cities, there are people who over-consume health care while others not having access to basic healthcare due to financial constraints. Inequality in access to healthcare could be attributed mainly to the social and living conditions of city dwellers.

2 Research design and methodology

The research methodology shall be limited in space and theme. The research will be conducted to achieve health equity between city dwellers. The scope of the study in terms of subject will include physical, environmental and social aspects that may have an effect on the health of people focusing on informal settlement's dwellers. The research was carried out by identifying the key issues that cause the health inequity through:

- Principles and guidelines based on the literature review
- World Health Organization (WHO)
- United Nations Human Settlements Program (UN Habitat)
- Urban HEART (Urban Health Equity Assessment and Response Tool) by WHO
- HUDU Rapid Health Impact Assessment Matrix

As a result of the gathered data from the above sources an urban-health assessment tool is produced so we can achieve the relation between each urban aspect with the individual's health to come up with a framework that explains the urban settings that can be altered and the different modes of intervention that could be taken regarding these aspects in such settlements.



3 Urban settings are determinants of health

There is a web of urban determinants that have an influence on an individual's health. These include economic, social and environmental conditions.

Many cities are currently burdened and will be confronted by a triple threat:

- Infectious diseases exacerbated by poor living conditions.
- Non communicable diseases such as heart disease, cancers, diabetes and conditions fuelled by tobacco use, unhealthy diets, physical inactivity, and harmful use of alcohol.
- Accidents, injuries, violence and crime [1].

These are the results of the complex interaction of various determinants of health, including insufficient infrastructure and services that particularly impact the health of the poor and slum dwellers, which is our main concern in this paper [2].

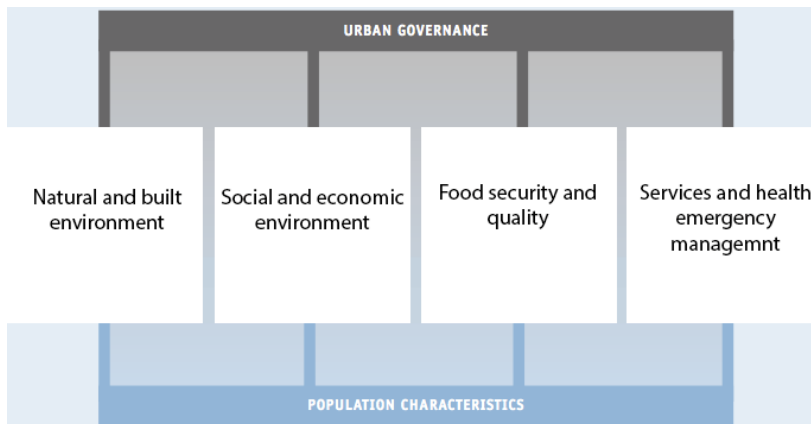


Figure 1: Factors that influence the health of individuals [2].

4 Urbanization has a negative impact on human's health

Despite the opportunities and benefits that the trend of urbanization offers, many cities have generated inequalities, various forms of exclusion and serious environmental problems.

Rapid population growth can strain the ability to regulate and magnify some long-standing threats to health and introduce others. When large numbers of people are linked together in space and connected by shared services, the consequences are harsh like contamination of the food or water supply, sanitation, food availability and safety, quality of health care provided, high levels of air or noise pollution and a disease outbreak or a natural disaster, due to growth, all of those are vastly amplified.

Perhaps most alarming, the growth of urban centers in the 21st century is being accompanied by a second, distinctly ominous trend. Poverty, which was concentrated in rural areas before but now heavily concentrated in cities. In many countries, urbanization has outpaced the ability of governments to build essential infrastructures and enforce the legislation that make life in cities safe and healthy which was the main cause for the formation of informal pockets within these cities known as informal settlements. The previous content has underlined trends and projections related to urbanization when it comes to the health and wellbeing of the people and urban settings that are subjected to it [3].

4.1 Informal settlements formation due to rapid urbanization

The fastest growing urban populations are at the same time the regions with the highest proportion of slum dwellers. Often, growth occurs so quickly that urban planners do not know how many people are residing in their cities, where they are living or what are their needs. This lack of basic information creates situations in which public resources fail to reach those who are most in need [1].

Slums are no longer just areas housing a relatively small proportion of the urban population however, they are a dominant type of human settlement, carving their way into the fabric of modern-day cities, and making their mark as a distinct category of human settlement [2, 7].

4.2 Health determinants in a poor urban setting

Multiple determinants congregate to influence the health status of city dwellers, and positive and negative impacts tend to cluster according to specific neighborhoods within the city but since we are focusing on poor urban settings in this paper then we will address only negative impacts. Informal settlements offer the worst environments for health and well-being of their residents [2].

5 Urban HEART (Urban Health Equity Assessment and Response Tool)

5.1 What is Urban HEART?

The Urban Health Equity Assessment and Response Tool (Urban HEART) is a user-friendly guide produced by the WHO to:

- Identify and analyze inequities in health between people living in various areas or belonging to different socioeconomic groups within and across cities;
- Facilitate decisions on viable and effective strategies, interventions and actions that should be used to reduce inter and intra-city health inequities [4].



Table 1: Health determinants of an urban setting [2] (altered by researcher).

FACTORS	HEALTH PROBLEMS
NATURAL AND BUILT ENVIRONMENT	
Housing conditions	<ul style="list-style-type: none"> • Dust, damp and mold induced diseases • Injuries and burns
Air quality and ventilation	<ul style="list-style-type: none"> • Chronic diseases
Access to safe water	<ul style="list-style-type: none"> • Malaria • Diarrhea • Worm infections
Access to sanitation	<ul style="list-style-type: none"> • Stomach cancer
Traffic, industries and waste sites surroundings	<ul style="list-style-type: none"> • Chronic lung disease • Neurological/reproductive diseases • Injuries and deaths
SOCIAL AND ECONOMIC ENVIRONMENT	
Social support and cohesion	<ul style="list-style-type: none"> • Poor mental health • Premature death
Safety and security	<ul style="list-style-type: none"> • Violence • Deaths and injuries
Food security and quality	<ul style="list-style-type: none"> • Cancer • Diarrhea • Intestinal worms diseases
SOCIAL SERVICES AND HEALTH EMERGENCYMANAGEMENT	
Access to good quality health care	<ul style="list-style-type: none"> • Deaths • Wrong treatments
Emergency systems preparedness and response	<ul style="list-style-type: none"> • Burns • Deaths



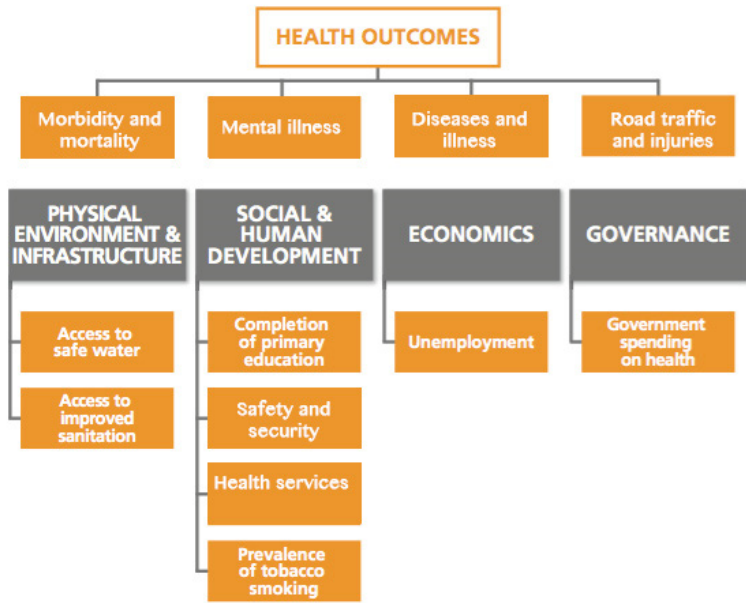


Figure 2: Core indicators of the Urban HEART tool [4].

5.2 Why should we use Urban HEART?

- To achieve a better understanding of determinants of health and their consequences on the individual’s life;
- Assist communities to identify gaps, priorities and required interventions to promote health equity;
- To make strategic decisions and prioritize specific actions and interventions.

Columns represent the performance of neighborhoods based on the different determinants. For example, a local urban area with many green squares is performing *better* than a counterpart scoring many red squares.























































Rows provide a broad picture of the effectiveness of a particular policy or program intervention [4] (see Table 2).

6 HUDU Rapid Health Impact Assessment Matrix

The tool is designed to assess the likely health impacts of the urban settings of a place and the development plans and proposals, including planning frameworks and master plans for large areas regeneration. It is partly based on the World Health Organization Publication Healthy Urban Planning by Hugh Barton and Catherine Tsourou.



Table 2: Urban Health Equity Matrix produced by Urban HEART tool [4].

POLICY DOMAIN	INDICATORS	NEIGHBOURHOODS					
		#1	#2	#3	#4	#5	#6
PHYSICAL ENVIRONMENT & INFRASTRUCTURE	Access to safe water						
	Access to improved sanitation						
SOCIAL & HUMAN DEVELOPMENT	Prevalence of tobacco smoking						
	Completion of primary education						
	Skilled birth attendance						
ECONOMICS	Poverty						
	Unemployment						
GOVERNANCE	Government spending on health						
	Voter participation						

It helps identify those determinants of health which are likely to be influenced by a specific development proposal. It does not identify all issues related to health and wellbeing, but focuses on the built environment and issues that affect health directly or indirectly. Not all the issues or assessment criteria may be relevant and the user is encouraged to priorities specific actions which focus on key impacts. It is generic and should be localized for specific use [5].

These are 9 topics or broad determinants identified by the assessment matrix:

- Housing quality and design
- Access to healthcare services and other social infrastructure
- Access to open space and nature
- Air quality, noise and neighborhood amenity
- Accessibility
- Crime reduction and community safety
- Access to healthy food
- Social cohesion
- Minimizing use of resources

Table 3: Rapid Health Impact Assessment Matrix [5].

ASSESSMENT CRITERIA	RELEVANT?	POTENTIAL HEALTH IMPACT	RECOMMENDED MITIGATION OR ENHANCEMENT ACTIONS
Housing Quality	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Neutral	
Health care and social services			
Access to Green and open spaces			
Air Quality and ventilation			
Accessibility and Land use			
Safety and security			
Access to healthy food			
Minimum uses of resources			
Social cohesion			

7 Proposed Urban-Health evaluation tool

As a result of the previous findings an Urban-Health evaluation tool was produced showing how each urban factor affects individual's health and what interventions can be taken to improve these aspects of the urban environment according to the current environmental and economical situation in Egypt.

Physical, environmental and social factors were chosen for their direct influence on human's health and wellbeing to produce:

1. Urban-Health assessment matrix;
2. Conceptual framework to achieve health equity in informal settlements;
3. Success indicator matrix.

7.1 Criteria for interventions based on the current situation in Egypt

The Egyptian physical, environmental and social characteristics shape the local urban context. Once identified, these factors could help inform the broader qualitative research framework and ultimately, the proposal for intervention. It also shows that understanding context-specific insights relating to local *dynamics* could improve the outcome of urban development processes, leading to interventions [6].

The concluded 6 criteria from previous intervention case studies:

1. Passive treatments;
2. Environment friendly materials;



3. Easy to obtain materials;
4. Durable solutions;
5. Cheap solutions;
6. Community engaging.

Table 4: Urban-health assessment matrix (source: researcher).

HEALTH INDICATORS	MOST COMMON HEALTH PROBLEMS IN INFORMAL SETTLEMENTS WORLDWIDE								
PHYSICAL	Respiratory disease	Heart disease	Cancer	Cholera	Neurological disease	Intestinal diseases	Diarrhea	Mental illness	Injuries and burns
Housing Conditions	●	●	●	●	●	●	●	●	●
Infrastructure	●	●	●	●	●	●	●	●	●
Land use and zoning	●	●	●	●	●	●	●	●	●
ENVIRONMENTAL									
Air Quality and ventilation	●	●	●	●	●	●	●	●	●
Lighting	●	●	●	●	●	●	●	●	●
Green and open spaces	●	●	●	●	●	●	●	●	●
SOCIAL									
Safety and security	●	●	●	●	●	●	●	●	●
Health care and social services	●	●	●	●	●	●	●	●	●
Education	●	●	●	●	●	●	●	●	●
● STRONGLY AFFECT ● NO EFFECT ● PARTIALLY AFFECTS									

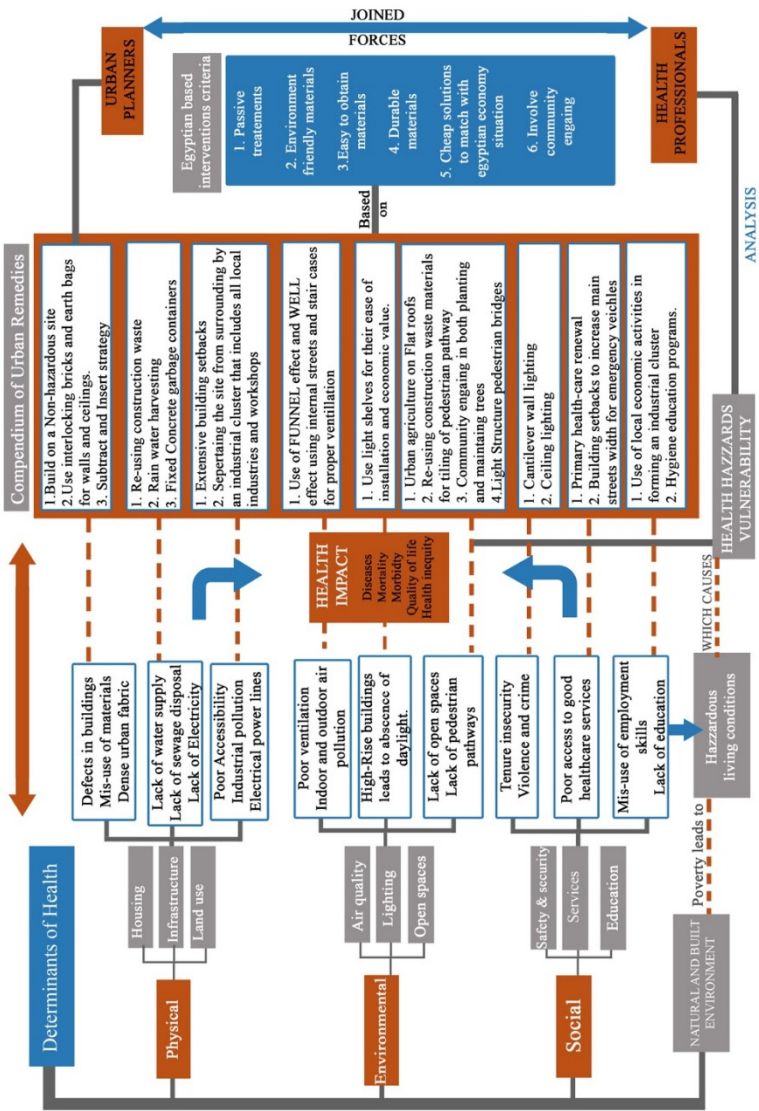
7.2 Conceptual framework to achieve health equity in informal settlements in Egypt

This model was originally developed to connect urban environments together with public health. It was subsequently applied to the areas underlying health inequalities to illustrate how these inequalities result from differential exposure to risk- physical, environmental and social factors. This model links urban structure to health and disease via poor living conditions.

Reading from left to right, we notice the urban determinants of health (including physical, environmental and social) giving rise to a set of unequal socioeconomic living conditions these population groups are subjected to. These factors can be described as *urban determinants* of health inequities. These mechanisms configure the health opportunities of social groups based on their placement within specific areas and environments and their vulnerability to the health hazards they are subjected to.



Table 5: Conceptual framework to achieve health equity in informal settlements in Egypt (source: researcher).



Moving to the right, we observe how these socioeconomic positions then translate into a specific compendium of urban remedies to help enhance each specific problem or health- hazard trigger.

A distinctive element of this model is its explicit incorporation between urban planners and the health sector's key role in promoting and coordinating to reunite and propose these urban remedies but by considering a single fundamental factor which are the criteria based on the *Egyptian* economical and environmental situation as well as previous successful upgrading projects. These *criteria* play a fundamental role in the formation of these interventions.

Table 6: Success Indicator Matrix (source: researcher).

HEALTH INDICATORS	Area A		Area B	
PHYSICAL	Before	After	Before	After
Housing Conditions	●	●	●	●
Infrastructure	●	●	●	●
Land use and zoning	●	●	●	●
ENVIRONMENTAL				
Air Quality and ventilation	●	●	●	●
Lighting	●	●	●	●
Green and open spaces	●	●	●	●
SOCIAL				
Safety and security	●	●	●	●
Health care and social services	●	●	●	●
Education	●	●	●	●

● GOOD STATE
 ● INTERMEDIATE
 ● BAD STATE

After applying the conceptual framework on any neighborhood subjected to the foregoing living conditions and health hazards this success indicator matrix is used as a tool to measure the success of each intervention and the overall situation of the neighborhood.

8 Conclusion

The importance of creating an Urban-Health evaluation tool in Egypt is crucial specifically to touch the problem in informal settlements that due to the physical,



economical and environmental conditions; they now occupy a spatial and demographic size in all Egyptian cities.

Indeed, the links between urban planning and health were at the origin of planning as a profession. However, this shared origin was forgotten and the fields of planning, development and health have not been as closely aligned as they were historically.

Current health Assessment tools are accommodated to suit the environment for which each was designed for and since health deterioration in informal settlements has long been recognized as a major community problem as well as one of the fastest growing phenomenon in the world. The research demonstrated that applying an Egyptian-customized Urban-Health evaluation tool in informal settlements of Egypt will lead towards achieving health equity between all the strata of the Egyptian society.

References

- [1] World Health Organization, WHO, Our cities, our health , our future, pp. 5–8, 2008.
- [2] United nations human settlements program, UNHABITAT, World Health Organization, WHO, Hidden cities:Unmasking and overcoming health inequities in urban: Kobe, pp. 6–29, 2012.
- [3] World Health Organization, WHO, Why Urban Health Matters. 1000 Cities 1000 lives, pp. 2–5, 2010.
- [4] World Health Organization, WHO, Urban HEART: Urban health equity assessment and response tool. WHO Centre for Health Development :Kobe, pp. 10–33, 2010.
- [5] Planning for health, HUDU, Rapid health assessment matrix, NHS London Healthy Urban Development Unit: London, pp. 10–33, 2013.
- [6] Beltrán del Río García Luis et al., Improving informal areas in greater Cairo. The cases of Ezzbet Al Nasr and Dayer El Nahia, Participatory development program in urban areas, PDP: Berlin, pp. 28–49, 76–79, 2010.
- [7] Marwa, A.K., Redefining slums in Egypt: Unplanned versus unsafe areas, El Sevier, Habitat International 35, pp. 40–49, 2011.

