

Urban Children and the Physical Environment

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What do children need in order to thrive? We are accustomed to thinking in terms of the social supports and services that are so important to them – the love and protection of their families, the friendship of their peers, the clear guidance of social norms and values, the health services and education provided within their communities. But children also need supportive physical environments to contribute to their optimal development. For poor urban children in particular, the physical environment can present major problems, undermining their well being and their prospects for the future. The availability of decent housing, the provision of water and sanitation, the quality of space for play, the levels of traffic and pollution – these features of urban life, and many others, have profound impacts on children. In the absence of supportive measures from local government and its partners, even the most committed parents can be limited in their capacity to provide appropriate living conditions for their children.

But why should children be singled out for attention here? They share their homes and local surroundings with parents and relatives and neighbours. Surely, whatever works for the rest of the community will also work for children? To some degree, this is true. Decent housing and common space, clean air and adequate basic services are important to everyone, and should be addressed within all urban communities. But it is also true that children have some particular developmental needs that call for attention, such as the need for play. They can also be far more seriously affected than adults by their living environments because of their greater vulnerability to disease and environmental hazards. These realities are frequently ignored. Paying attention to what children really need often means different priorities and different standards for local authorities and their partners. This paper will describe some of the effects that the physical environments of urban poverty can have for children over the short and longer term, and will discuss some basic principles and guidelines for local authorities to consider as they work to make their cities better places for children.

Box 1: The framework of children's rights

These days, when we talk about children's needs, we often do so from a rights perspective. The Convention on the Rights of the Child, adopted by the United Nations in 1989, has been more widely ratified than any treaty in the world, and is increasingly the framework for addressing attention to children. At the same time, even among countries that have signed this treaty, there can be a certain hesitation about children's rights – a sense that this perspective may be a threat to customary ways of doing things, or an unwelcome imposition of standards. But as local authorities work to respond to children's needs, the Convention can provide some useful practical guidance. It is worth discussing briefly what "children's rights" might mean for local authorities as they allocate resources and make plans and decisions that affect the physical environments of their cities.

The Convention, first of all, recognizes children's right to survival and optimal development (Article 6). There is little that is threatening about this principle, especially in cultures that place high value on their children. This does imply, however, that officials should have an understanding of the ways that their actions can affect children's survival and development.

That is basically what this conference is about.

The Convention rejects discrimination (Article 2). All children, regardless of age, gender, abilities, religion, or ethnic background, have the same right to survival and development. Children in squatter settlements, refugee camps, institutions, or on the streets should have the same basic protections and opportunities as those in affluent communities. This is a challenge where resources are limited, but it is also fundamental to poverty reduction. This principle should not be misunderstood. It does not mean, for instance, that girls and boys should engage together in the same activities when this violates local custom. It *does* mean that it is unacceptable to provide recreational facilities for boys and to ignore girls who also need exercise and a chance to socialize. Appropriate provision should be made for them as well, in keeping with local norms.

The Convention requires that children's best interests be a primary consideration in all actions and decisions that concern them (Article 3). This does not mean that children become the only point of reference; it means that planning for land use, housing, transport, parks, basic services and so on, should not be undertaken without considering the effects on children – a reasonable consideration where half the population consists of people under 18.

Closely related to this, the Convention states that children have a right to a voice in decisions that concern them (Article 12) and, specifically in this context, to decisions that affect their physical environments. This principle is likely to be viewed with the most scepticism. In practice, however, it can be a sensible provision – a way of drawing on children's expert knowledge of their own surroundings, activities and needs, and a way of training them in the responsibilities of citizenship.

What do urban children need from their physical environments?

In order to build and manage cities that work better for children, it's important to understand how urban environments affect children and what children actually require from them. Children need the security, stability and protection provided by adequate housing, they need a healthy, safe environment, and they need access to play, and the multiple supports for mental and social development that are provided by diverse, stimulating, accessible neighbourhoods. Ideally, this paper should focus primarily on examples of good practice that could inspire and motivate interventions. But comparatively few urban upgrading projects have really taken children's needs into account in an informed way – or at least few have been documented and made available to us. In large part, this is because efforts to improve living environments, effective as many have been, are seldom viewed as “children's projects”, and they tend not to be undertaken or documented with a view to how they affect children. In the absence of a range of child-focused examples, I will concentrate instead on establishing some basic principles for planning in ways that take children's needs into account. The challenge, then, is for local authorities and their partners to think creatively about their efforts with regard to sanitation, road construction, settlement upgrading, regulations about land tenure and so on, and how these might proceed if they were undertaken with a commitment to positive outcomes for children. There is a need for thoughtful, innovative responses, and for the documentation of examples from which we can all learn.

Children need the security and stability of adequate housing.

A shortage of housing stock, high rental costs, an absence of housing finance, and constrained access to land may appear to be adult concerns but they have significant impacts on children.

Secure housing is fundamental to a secure family life and can be a critical asset in the attempt to move beyond chronic need, providing a foothold for tackling other problems of poverty.¹ When this basic requirement is not met, children can be affected in every area of their development.

Many poor urban dwellers can only afford to live in overcrowded, rundown rental housing or in informal squatter settlements. In some cities in the Middle East–North Africa region, the majority of people live in such informal settlements. They are often on the outskirts, far from jobs and services, and almost always on the least desirable land. Their location can have serious impacts on young children who may be distant from the services they need and whose parents may spend long hours each day getting back and forth to work. This can undermine the quality of care for young children and any sense of family life; for older children, it also means isolation from the opportunities and interest that the rest of the city holds.

Because of the lack of secure tenure in informal settlements, residents can be reluctant to invest in improvements in their homes and neighborhoods because of concern about eviction. In the absence of such improvements, homes are often built from the flimsiest and most inadequate materials, leaving children and their families vulnerable to such events as earthquakes, landslides and high winds, as well as the numerous health hazards related to vector-borne disease and poor construction. Settlements often remain unserved, not only by basic service provision, but often by shops, local facilities and other community-backed investments.

These issues of tenure have practical, material implications for children – but they also have psychological consequences. Children’s developing sense of emotional security and trust in the world is rooted not only in their relationships with other people but in the security, familiarity and predictability of their physical environment.² Children need to live in a place that will not be taken away tomorrow or next month. The emotional problems of homeless children have been found to include anxiety, sleeplessness, aggression and withdrawal.³ Even when they are not homeless, they are sensitive to the anxieties of their parents – whether these are about meeting unaffordable rents, coping in the absence of basic supports, or dealing with unpredictable circumstances.

The worst situation for children is forced displacement or eviction. This can result in economic upheaval and the destruction of social networks, but it is also traumatic for children in its own right. Evidence from Manila, Mumbai and Phnom Penh indicates that, in response to the violence, panic and confusion of the event, and the deprivations and uncertainty that follow it, many children experience recurring nightmares, anxiety and distrust. The impacts of eviction for family stability and for children’s emotional well-being can be devastating; the experience has been described as comparable to war for children in terms of the developmental consequences.⁴ Even when evictions are followed by immediate relocation, the effects on children can be destructive and unsettling.⁵

Even when tenure is secure, many urban households live in noisy, overcrowded, rundown conditions, which can drain the emotional resources of both children and their families. Studies from various parts of the world have found that crowded and chaotic conditions contribute to stress and challenge social relations.⁶ Research suggests that under these conditions parents tend to be less involved with their children, more impatient and repressive, and even punitive.⁷ This is true even in cultures known for their kindness towards children. A study in Alexandria, for instance, revealed that children were far more likely to be beaten or treated harshly by their parents when they lived in crowded conditions or shared their living quarters with strangers.⁸ Crowded, noisy, rundown conditions have also been related to poor cognitive development in children, lower reading comprehension and lower motivation.⁹

The scale of the need for land and for finance to improve housing is undoubtedly a daunting issue for many local authorities. It is clear, however, that approaches that involve working collaboratively with organizations of the urban poor, supporting their energy and creativity, have been most successful in making optimal use of limited resources. Box 1 offers one example of such collaboration, and there are others in David Satterthwaite's paper on governance. In exploring options and setting priorities, it is critical that the implications for family stability and the long-term material and psychological effects for children be weighed carefully.

It is important to note, too, that living in crowded conditions is often a choice that urban dwellers make in order to be closer to jobs and services. Relocation does not solve these problems. There are, however, constructive ways to take some of the strain off tight living situations: access to loans for upgrading and repairs, and proper waste collection, for instance, allow for better use of the space people have; regulations that permit 2- or 3-storey structures where one is currently allowed can relieve the pressure for households. Most of all, community-level space and facilities can do much to alleviate the stress of crowding at home. This will be discussed at more length in the section on neighbourhood.

Box 2: People-managed resettlement in Mumbai

It is impossible to avoid some displacement of people in cities where government needs to improve infrastructure and services for residents and enterprises. But this does not have to result in forced evictions, with the almost inevitable impoverishment and upheaval that this means for those who are displaced. In the city of Mumbai, which is so hard-pressed for land, 60,000 people were voluntarily and successfully resettled last year in an effort that was underpinned by strong levels of community organization, and the willingness of the municipality to negotiate and plan collaboratively.

Mumbai relies heavily on its suburban railway system to get millions of workers in and out of the city each day. However the railways' capacity has been limited by the illegal settlements crowded onto each side of the tracks. By 1999, over 20,000 households lived within metres of the tracks. Accidents were common, especially for children playing on the tracks. Residents faced insecurity, high noise levels, and a lack of basic service provision; Indian Railways did not permit upgrading for fear this would legitimize the settlements. Train speeds were greatly restricted, reducing potential service by about 40 percent, and thereby affecting the city's productivity. There was considerable pressure to evict residents without measures for resettlement.

With the support of an alliance composed of the NGO SPARC, the National Slum Dwellers Federation and Mahila Milan, a women's network, 60,000 people were resettled in little more than a year, without coercion and with significant resident involvement in designing, planning and implementing the move. Although the process has not been problem-free, the outcome has involved improvements for all concerned. Residents have secure accommodation with provision for piped water, sanitation and electricity; children's schooling has not been interrupted, resettlement was organized to keep friends and chosen neighbours together. The process avoided the economic and social upheaval which almost inevitably accompany evictions, and which have such destructive impacts for children's development.

Source: S. Patel, C. d'Cruz, S. Burra (2002) "Beyond evictions in a global city: people-managed resettlement in Mumbai", *Environment and Urbanization*, vol. 14 (1) 159-172

Children need a healthy environment

Children's survival and good health depend at least as much on safe, healthy environments as on the provision of health services. They need to live in surroundings where it does not take superhuman efforts to protect them from disease. Inadequate sanitation and drainage, a lack of sufficient clean water, uncollected waste and pollution all contribute to unacceptable levels of child mortality and morbidity. The Middle East–North Africa region has made incredible gains in this regard over recent decades, reducing under-five mortality more rapidly than any other region in the world. But child mortality rates are still higher, relative to income, than is true in some other regions; over half a million children still die each year before they are five.¹⁰ These deaths are largely from preventable diseases related to the quality of the environment,¹¹ and they are most common in the poorest communities, where physical conditions are most threatening.

It is estimated that two-thirds of the illnesses caused by poor living conditions occur among young children.¹² Children are far more seriously affected than adults for two reasons. Their immune systems are less effective – they have not yet built up resistance to many of the pathogens that surround them. Children tend to be more heavily exposed to pathogens; babies, especially those learning to crawl and walk, spend time close to the ground when they are not carried, and they put everything into their mouths. Even somewhat older children have little appreciation of hygiene, and they have a drive to play that can override other concerns.

The contribution of water and sanitation

Children in unsanitary environments often have repeated diarrhea, worm infestations, scabies, rashes, open sores and eye infections. Adequate provision for water and sanitation, as well as drainage and waste removal, are essential to the prevention of these ailments.¹³ Many countries in the region report adequate provision of water and sanitation for over 95 percent of the urban population. But if adequate provision is taken to mean the kind of service that meets the needs of young children and their caregivers, then far less than 95 percent is covered in most cities.

“Adequate” provision of water, for instance, is generally considered to mean the availability of safe water within a certain distance. This says nothing about the regularity of supply or, for those who fetch water, the time that can be spent waiting in line. These factors can have a critical effect on the amounts of water actually used in a household. The *quantity* of water used is even more important for children's health than the *quality* of water. Clean drinking water is critical, but is not the only issue. Water is also necessary for bathing children and washing hands, for cleaning food, cooking surfaces, clothing, floors and so on. Insufficient water, especially in combination with poor sanitation, contributes to the endemic illnesses that underlie much of children's chronic ill health.¹⁴ When supplies are irregular, and when water points serve too many people or are at a distance, it is common for households to make do with less than they need to maintain sanitary conditions. The effects on children's health can be dramatic – a Brazilian study showed that infants were five times more likely to die in households using public standpipes as in those with water piped to the house.¹⁵

Another problem, often overlooked, has to do with the storage of water. Even if it is clean at the source, it can easily become contaminated when it is stored.¹⁶ The prevalence of diarrhoea for small boys in Ethiopia was found to be significantly associated with drinking water dipped from storage containers; by contrast, the water source and the amount of water consumed were not significant risk factors.¹⁷ Clearly, the only acceptable standard of provision for young children is regular supplies of water piped directly to the house or yard. It may seem unreasonable to

encourage greater water use among the urban poor in a region where water scarcity is a serious issue. But the amounts used by the poor represent a small part of overall use, certainly less than is accounted for by leaks and wastage in water systems.¹⁸

Problems posed by inadequate water supplies are further complicated by poor sanitation, which greatly heightens the need for hygiene. Where young children are concerned, the only adequate sanitation methods are those that eliminate all possibility for contact with excreta. Safe stool disposal is far more effective as a safeguard against disease than any amount of hand washing.¹⁹ Yet many poor urban communities lack a sanitary means for disposing of human waste. Even those that are considered adequately served often fail to meet the needs of young children. “Adequate” sanitation sometimes means poorly maintained communal latrines. These are difficult enough for adults, who can spend a lot of time in line; they are impossible for young children. Research from around the world indicates that children below 6 or 7 are not comfortable using pit latrines, even those in their own homes or compounds – they are frightened of falling in large openings, frightened of the dark and bad smells.²⁰ When sanitary provision is not designed to respond to the needs of small children, large amounts of excreta often end up in drains, streets or yards, increasing the likelihood of contamination and illness.²¹ Considering the numbers of young children in any poor settlement, it is no wonder that settlements quickly become fouled even where provision meets approved standards.

The absence of proper drainage and solid waste collection contributes further to contamination and disease. Open drainage ditches often become clogged with uncollected garbage and excreta, and can quickly back up and spread waste through the surrounding area. Standing water can also be contaminated by blocked sewers and overflowing septic tanks, and pathogens are then spread quickly to everything else. Piles of waste, in addition, serve as breeding places for many disease vectors.²²

Malnutrition for children is related to these environmental conditions – it is not just a matter of getting too little to eat. Unsanitary living conditions pose a constant challenge to children’s immune systems. Nutrients that would otherwise go to growth instead go towards supporting the immune response.²³ Children with diarrhea also lose a lot of calories, as do children with worms, which can consume a considerable part of a child’s daily intake.²⁴ It is generally assumed that the effects of diarrhea will be transient, but in poorly served communities diarrhea may be too frequent to allow for catch-up growth.²⁵ Once children are malnourished, they become still more vulnerable to disease, and more malnourished.²⁶ Repeated illness can have long term effects that go beyond health and growth. Some studies have directly related the number of early episodes of diarrhea to lower cognitive functioning when children are 8 or 9.²⁷ Others have found that infestation with worms affects children’s memory, reasoning ability and reading comprehension.²⁸

The more challenging the physical environment is, the more critical the quality of care becomes for children’s health and survival. At the same time, poor provision of water and sanitation undermines the capacity of caregivers to provide good care for children since daily management becomes so time consuming. Coping with water supplies, keeping children clean, dealing with waste and children’s excreta, and handling food hygienically can take more free hours than there are in a day. Overburdened caregivers are more likely to cut corners in the many procedures necessary to ensure their children’s health. It is common, where resources are limited, to view hygiene education for caregivers as a reasonable alternative to improved provision. Numerous studies, however, have indicated that this accomplishes little in the absence of adequate water and sanitation.²⁹ Keeping small children safe in a contaminated environment takes time – not just knowledge about the effects of microbes. Many mothers acknowledge that they are simply too tired to take the necessary steps.³⁰ It is important to note that the heavy workloads associated with

poor provision affect older children too, especially girls, and can contribute to keeping them out of school.³¹

Provision of piped water and sanitation, drainage and waste collection that genuinely meets the needs of children is no small task. A range of municipal and community initiatives have demonstrated cost-effective measures to improve provision in these areas, as well as in proper drainage and solid waste collection.³² Calculations about affordability or cost effectiveness have to include a real consideration of the costs to individual children and to society of *not* improving provision.

Table 1: Addressing environmental health risks in urban areas

Health risks	Action at household level	Action at neighbourhood level
<i>Insufficient water for domestic hygiene</i> - diarrhoeal diseases, eye infections (including trachoma), skin diseases, scabies, lice, fleas	Regular water supply, adequate for washing and bathing, laundry, dishes, house cleaning At least 8-10 litres per person per day	Health and personal hygiene education for children and adults, <i>in combination</i> with adequate provision of facilities for laundry and bathing at this level, if not within each house.
<i>Contaminated water</i> - typhoid, hepatitis, dysenteries, diarrhoea, cholera etc.	Protected water supply to house; hygienic water storage, including covered containers and tanks, regularly cleaned	Provision of water supply infrastructure; knowledge and motivation in the community
<i>Inadequate disposal of human wastes</i> - pathogens from excreta contaminating food, water or fingers leading to faecal-oral diseases or intestinal worms (eg hookworm, roundworm, tapeworm, schistosomiasis)	Support for construction of easily maintained WC or latrine which eliminates possibility of contact with excreta, and which is suitable for the use of small children. Washing facilities to promote hand washing	Mix of technical advice, equipment installation and its servicing and maintenance (the mix is dependent on the technology used).
<i>Waste water and garbage</i> - waterlogged soil ideal to transmit diseases like hookworm; pools of contaminated standing water, conveying enteric diseases. Waste water can provide breeding ground for mosquitoes spreading filariasis, malaria and other diseases. Garbage attracting disease vectors	Provision of storm and surface water drains on house plot and spaces for storing garbage that are rat, cat, dog and child proof	Design and provision of storm and surface water drains. Advice to households on materials and construction techniques to make houses less damp. Consider feasibility of community-level garbage collection which includes recycling

<i>Indoor air pollution</i> because of open fires or poorly designed stoves and smoky fuels. These cause or exacerbate respiratory illnesses, especially in women and children	Posters/booklets on improved stove design and improving ventilation; subsidies for cleaner-burning fuels	Ensure availability of designs and materials to build improved designs
<i>Outdoor air pollution</i>	Identify major sources of ambient air pollution within each neighbourhood and seek to limit their emissions	

SOURCE: Adapted from Hardoy, Jorge E., Diana Mitlin and David Satterthwaite (2001), *Environmental Problems in an Urbanizing World: Finding Solutions for Cities in Africa, Asia and Latin America*, Earthscan Publications, London.

Toxics and pollutants

Biological pathogens are the most significant environmental health risk for children in poor urban communities, but toxics and pollutants are also a serious threat. Children’s greater vulnerability extends also to these substances, whether they are present in water, air or food. Relative to their body weight, children take in more of the dangerous substances they are exposed to than adults do, and their bodies are less capable of getting rid of them. Their rapid growth and development, at the same time, puts them at much greater risk of long-term harm.³⁵ Exposure to a range of industrial wastes, emissions from vehicles, and substances such as fertilizers and pesticides can result in respiratory illness, skin and eye problems, birth defects, various cancers, as well as damage to the immune system, the central nervous system, the internal organs and the cardiovascular system.³⁴

In terms of the overall health burden to children, the single most serious source of pollution is open fires or poorly vented stoves in their own homes. Concentrations of damaging particulates in indoor air have been estimated to be up to 100 times higher than health standards allow for, and to be many times higher than most outdoor urban concentrations.³⁵ The risk of serious respiratory infections for young children is from two to six times higher in smoke-filled homes.³⁶ Some studies have found a direct relationship between the number of hours a day that young children spend indoors and the number of life-threatening episodes of acute respiratory infection.³⁷ Infants and toddlers, kept inside and close by while caregivers cook, are especially vulnerable. Also highly vulnerable are girls between 5 and 14, because of the longer hours they spend indoors. Worldwide, girls are 20 percent more seriously affected than boys.³⁸

Outdoor air pollution is also an extremely serious issue in some cities in the region. The growing levels of motor vehicle exhausts, in particular, have become a major source of many of the pollutants that affect the health of urban residents.³⁹ Cairo, for instance, has among the highest levels of particulate concentrations in the world. Lead levels are up to ten times higher than in most European cities.⁴⁰ The impacts on children are critical; at high levels, lead impairs liver and kidney functions and can result in severe neurological damage or even death. Even at relatively low concentrations, once considered quite safe, lead can affect behaviour and cognition, contributing to aggression and school failure.⁴¹

What can be done on these fronts? There are various possibilities, including, for indoor pollution, subsidies for cleaner burning fuels and for more efficient and better-vented stoves and heaters. (See table 1) Unleaded fuel for vehicles is essential; and regulations to control toxic emissions and dumping must make the impacts on children a higher priority than the convenience of industry. If environmental standards and regulations were genuinely adapted to children’s

requirements, and implemented with commitment, the result would be a safer, healthier world for everyone and, in the end, for those interested in the bottom line, a more productive world.

Children need a safe environment

Children need homes and neighbourhoods that do not put them at risk of serious injury, whether through burns, falls, poisoning or road accidents. Especially in countries where disease is still a significant problem, it is not unusual for injuries to be taken far less seriously as a public health issue, and to be perceived as random and unavoidable events, and hence not a reasonable target for prevention.⁴² But the fact is that high numbers of children in the region are killed or disabled every year as a result of injuries that could be prevented.⁴³

Traffic-related accidents are responsible for the most serious unintentional injuries in the region and, along with drowning, for the highest number of injury-related deaths among children.⁴⁴ (This does not count war-related injuries, which are unfortunately high in this region, but which we will not discuss, because of the limited power of local authorities in this regard.) High rates of injury from traffic are a fact of life in many countries now; in South Africa, for instance, road traffic injuries are the leading cause of death for children over one year.⁴⁵ The rapid growth of road traffic in most low- and middle-income countries, along with poorly maintained roads, multiple use of roadways and an absence of shoulders, sidewalks and safe crossings, have contributed to death and injury rates higher than any recorded in Europe and the USA.⁴⁶ In the region, road traffic injuries happen at especially high rates to children between 5 and 14 – a reflection in all likelihood of the fact that, for many children, streets are a primary and increasingly unsafe site for play.⁴⁷

Household accidents are also a matter for serious concern. Burns, falls and poisoning affect young children especially. Research from a suburban neighbourhood in Jordan found that kerosene heaters were used in most households and that most of them were on the floor, easily accessible to children. Many children were exposed to the risk of serious falls from roofs without fences, high windows without protection, and stairways without rails. One-third of the children depended on unsafe streets or roofs for play. Few families stored chemicals or poisons out of the reach of children. Researchers found that 60 percent of the sample families lived in conditions that exposed their small children to a range of significant dangers; only 8 percent of households were considered to be safe. In the 50 households surveyed, 22 children had required professional help for significant injuries – 11 were badly burned, 4 injured in falls, 2 in traffic accidents, 3 were poisoned, 1 suffocated and 1 was electrocuted. Researchers assumed that the problems would be still more severe in nearby squatter areas and refugee camps where conditions were considerably more challenging.⁴⁸

A number of factors puts children at particular risk of injury. Young children have a drive to explore and investigate their world but they lack the capacity to understand or respond appropriately to danger.⁴⁹ In Kuwait, for instance, 73 percent of children's burns happened to active, inquisitive 2- to 5-year-olds.⁵⁰ Even when children are a bit older and can understand the danger of a situation, they are not always developmentally ready to respond appropriately. Before the age of 6 or 7, for instance, children have a limited ability to tell how fast a vehicle is moving or to locate the sound of an approaching car, even when they are trained to be careful.⁵¹ Children's injuries have more serious effects because of their size and physiological immaturity. Fractures to immature bones are more likely to cause permanent disfigurement; burns are more severe and harder to recover from because of children's thin epidermis and their larger body surface area to volume, which increases relative surface fluid loss; the risk of head injuries is

increased by their large head-to-body ratio; the danger of choking increases because of their smaller airway size.⁵²

Boys are more likely than girls to be the victims of injury. In the 5 to 14 age group, they are more than twice as likely to drown, more than twice as likely to be injured in falls, and almost twice as likely to be killed or injured in road traffic accidents.⁵³ This gap is most likely a function of the greater freedom afforded to boys, with the greater exposure to risk that this implies.⁵⁴ Girls have a far greater likelihood of being killed or injured as a result of burns, a reflection of the extra time that they are expected to spend indoors, often with responsibility for cooking. There is repeated evidence that children in poverty are more affected by injuries, in part because their physical environments more likely to be hazardous, and in part because the work burdens of their caregivers often interfere with supervision.⁵⁵ In the United Arab Emirates, for instance, most injuries occur among poorer non-UAE nationals.⁵⁶ Injuries are especially common to working children, who are often required to use tools and equipment designed for adults, or who are exposed to unprotected machinery and or heavy loads that they are ill-equipped to deal with appropriately. This, combined with the loss of concentration resulting from fatigue, can mean high injury rates.⁵⁷

There are proven ways to reduce the heavy burden of children’s injuries – mostly through the kinds of environmental modifications and awareness raising that are well within the scope of local authorities and their partners. Dramatic progress over recent decades in the world’s higher income countries attests to the possibilities.⁵⁸ At the same time, solutions cannot simply be transferred from one place to another; risk factors vary from place to place. The design of successful prevention measures requires an understanding of how and why injuries occur within a particular locale, and who is affected.⁵⁹ Prevention is most successful when it is targeted at local conditions and causes and when interventions are locally evaluated for their effectiveness. Some interventions that have been successfully applied in countries around the world are listed in Table-2.

Table 2: Some injury prevention interventions that have been successfully applied in response to locally-identified problems

<p>Environmental modifications and improvements</p>	<p>settlement upgrading, including street lights, covered or walled ditches and drains, removal of rocky outcrops, sanitation provision to prevent need for walks in darkness to toilets improved recreational space for children provision of pedestrian pathways and other measures to separate pedestrians from motorized traffic traffic-calming measures such as speed bumps electrification to reduce dependence on candles and kerosene; more reliable power supply systems waste collection and clean-up campaigns to remove dangerous debris; attention to the condition of commercial vehicles; establishment of child care programmes support households to make their homes safer for children by: ensuring use of child-proof caps for pesticide, medicine and kerosene containers proper storage for drugs, chemicals and inflammable substances cooking above floor level safe stove design barriers between children and kitchen safety hazards, designated safe areas</p>
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		for children improved house construction; fences, roof rails, stair rails , window bars, well covers footwear for children
Education awareness campaigns	and	use of the mass media and pamphlet campaigns education in prevention for parents, children, health professionals and policy makers culturally appropriate education education for community members in first aid injury prevention awareness for policemen, municipal officials, construction workers support for marginalized communities in lobbying local government education and awareness-raising in combination with safety-enhancing environmental change home injury risk inventories by health visitors preventive strategies and education that recognize children's developmental capacities adaptation of safety curricula to local conditions and local knowledge (avoiding the tendency to use generic information which repeats much of what people already know) application of relevant elements from programmes directed at infectious, nutritional and perinatal disorders

Source: Adapted from Bartlett, S. 2002, "The problem of children's injuries in low-income countries: a review", *Health Policy and Planning*, 17 (1) 1-13

Children need environments that encourage play

An important aspect of local safety is its relationship to play. Children's drive to play is fundamental and has significant implications for their development. Anyone who has ever watched small children knows that, if they are reasonably healthy and happy, they will spend hours every day running and jumping, exploring their surroundings, touching, manipulating, experimenting with objects, imitating what others are doing. This is not just random pointless activity. Distinct changes have been found to take place in the brain as a result of free play and exploration in young children, affecting both their social behaviour and their capacity for learning.⁶⁰ Through their playful interaction with the world around them, children acquire the physical, social and mental skills they need for life. Play is essentially an expression of children's drive for competence and understanding. Through active play, they learn to use their bodies and to understand physical laws and spatial relationships; through manipulation and experimentation with different objects, they begin to understand concepts of quantity, size and shape, principles of cause and effect, and their own ability to make things happen; through their play with other children, they gain an understanding of the give-and-take of social relationships; through their imaginative play, they imitate the activities of those around them and grow in their understanding of social roles and cultural values.

Children's enormous potential for learning, which is activated in play, is encouraged by diverse and stimulating environments. Research has found that the developmental benefits of play for children are directly related to the availability and variety of stimulating objects and opportunities.⁶¹ This does not necessarily mean that young children need special playgrounds. It *does* mean identifying and protecting spaces close to home where they can safely run, jump,

explore, experiment and pretend, ideally in the company of other children. It is often assumed that playgrounds are the best way to meet children’s play needs. But in fact, playgrounds usually provide a limited range of possibilities, and even the most elaborately equipped formal playgrounds will not meet children’s needs if they have to be accompanied there by caregivers.⁶² Play is something that needs to be available to children all day long – not just as a special event. Fortunately, even the poorest environments can be rich and stimulating places for children’s play, provided they are safe.

Two separate studies from Jordan describe conditions close to ideal for young children’s play. The first, from a squatter settlement in Amman in the 1980s, describes the stimulating social life of even the smallest children. Because alleyways were too narrow for cars, children could move freely back and forth between households, finding other children to play with, visiting local shops, watching people go about their business. Even infants, according to this report, could crawl beyond their home courtyards, their caregivers secure in the knowledge that they would come to no harm.⁶³ A more recent description of children’s use of neighbourhood streets in Jordan describes the many possibilities for play that the street provides for slightly older children. There are patches of dirt for building imaginary landscapes, piles of sand for digging in, hard surfaces for ball games and bicycles, building entrances to hide in, flights of stairs and retaining walls to climb. Children are observed jumping, climbing, skating, sliding, running, chasing, sitting and watching.⁶⁴

Not all urban areas have streets this safe. And these descriptions may be overlooking the piles of waste and open drains that can make free play hazardous to the health of young children in many urban neighbourhoods. But even the smallest pockets of land can be improved to meet children’s needs. In Cairo several years ago, with the help of community development groups and support from an international NGO, local residents cleared several small garbage dumps to create safe spaces for children’s play.⁶⁵ When new housing is constructed, and where this is culturally accepted, units can be arranged around shared space that supports play and cooperation between neighbours. When an area is upgraded, the potential for play should always be considered. Measures that slow traffic, or eliminate it from some residential streets, can have dramatic effects; both Britain and the Netherlands have some excellent examples of residential streets where children’s need for play is given priority in various ways over the needs of cars.⁶⁶

Table 3: Support for young children’s play

Security and supervision	Safe contained space close to home Space shared with other households, to allow for joint child care Space close to adults who can keep a watchful eye as they work or socialize
Safety	Protection from traffic Covered drains No piles of waste, excrement, broken glass No unprotected heights for small children Indoors, protection from open fires, unstable heaters, scalding liquids, poisons, kerosene

Diversity and opportunity	<p>Easy contact with other young children</p> <p>Obstacles to play removed</p> <p>Things available to climb over, crawl under, jump off</p> <p>Space to run and chase</p> <p>Age-appropriate challenge without danger</p> <p>Places to hide or withdraw</p> <p>Availability of “loose parts” – sticks, stones, bottle caps, plastic bottles, containers, boxes, water, sand</p> <p>A natural environment</p> <p>Opportunities that allow children to gradually expand their competence</p> <p>A flexible environment that can be shaped and changed by children</p> <p>Supports that allow children with disabilities to make the best possible use of their abilities, and give them the chance to be with other children</p>
Formal playgrounds	<p>Many small spaces, close to where children live, are better than one large place at a distance</p> <p>Accessible, without discrimination, to all ages and special needs</p> <p>Well-maintained to ensure the absence of hazards</p> <p>Responsibility for management and maintenance clearly established</p> <p>The availability of play staff, playworkers in larger areas</p> <p>A varied environment, potential for games, ball play, not just fixed equipment</p> <p>Provision for more than just physical activity; places for quiet activities, pretend play</p> <p>Places for adults to sit and socialize</p> <p>Trees and other vegetation for play potential and shade</p> <p>Away from traffic and pollutants</p>
Where outdoor play is difficult or impossible	<p>Provision of indoor community play spaces</p> <p>“Toy libraries”, where stimulating materials can be borrowed</p> <p>Committed protection of places where children already play, to prevent appropriation</p> <p>For other uses</p>

In some circumstances, free play for children in the areas immediately surrounding their homes may not be feasible, and specially provided playgrounds may be the best solution. Where this is the case, it is important to ensure as wide a range of play as possible, as close to children’s homes as possible. Table 3 offers some guidelines for provision for young children’s play, both around home and in local playgrounds. Box 3 describes a particular variant on formal provision for play which can be modified and adapted in many ways, and which particularly suits the needs of school-aged children in crowded urban areas.

Opportunities for play are important for every child but special efforts must be made to ensure access to an involving environment for children with disabilities, of whatever kind. Modifications should be made where necessary to encourage inclusion and mobility and to encourage the best use of children’s abilities, giving them the opportunity to be with other children and to function with as much self reliance and dignity as possible. It is not just the physical environment that needs to be addressed. The availability of trained playworkers within a city can contribute to serving many children with physical needs, visual and hearing impairments, and emotional and intellectual difficulties.⁶⁷

It is important to recognize that sometimes the best response to children's play needs is simply to protect what already exists. Residents in many communities have recognized that upgrading local streets would radically change the quality of life for children. They have resisted so-called improvements or have created their own informal speed bumps to slow down traffic.⁶⁸ A squatter settlement in Kathmandu, Nepal, has an area of open land, surrounded by scrubby growth, which the community has intentionally protected from settlement, saving it as play space for their children. This space is filled with children of all ages running around, chasing each other, skipping rope, playing games that make ingenious, creative use of whatever materials they find around them, or just watching what others are doing.⁶⁹ This kind of space is unusual in a crowded urban settlement. Children's play is seldom given priority over other pressing needs. In the middle of a settlement near Johannesburg, for instance, a couple of large shipping containers were donated for children's play, and sand piles and climbing equipment were added by older children and local volunteers. This is a place where every neighbourhood child can go safely and find friends and activity. But now the community wants to take the space over for an AIDS clinic – a vital need, but not one that should be allowed to compete with the needs of children.⁷⁰

Box 3: Adventure playgrounds

“Adventure playgrounds”, which exist in a number of cities around the world, provide an interesting alternative to traditional playgrounds, with their fixed equipment and limited range of activities – an alternative that most school-aged children welcome. Although children may enjoy swings and slides some of the time, in most cases they want a far wider range of possibilities and more of a chance to create their own opportunities for play. Adventure playgrounds respond to children's desire for variety and to the fact that different children like doing different things. They offer a range of opportunities within a contained area, generally including such elements as rope swings, climbing frames, sand pits and ball game areas, as well as places for quiet activities; but many also have materials and tools that allow children to construct and modify their own environment.

An important element of any adventure playground is the presence of trained adults called “playworkers” who are available not to direct children's activities, but to help them explore particular interests, idea or projects by providing advice, guidance and materials. Adventure playgrounds are not totally unstructured, but the activities are structured largely by the children themselves, with support from the playworkers.

London has more than 80 adventure playgrounds, scattered across 17 boroughs, providing school-aged children with opportunities to play that they simply cannot get elsewhere in our busy, urban environment. Fenced and secure, these adventure playgrounds are oases where children can take risks and have adventures, safe in the knowledge that professional help is there if it is needed.

In putting children first, adventure playgrounds know they have to be open to all children, not just those that can afford it. So there's no charge to come in, and children are free to come and go as they please - after school, at weekends and during school holidays.

Most have quiet places for children to read or do homework, many have computers, some have after-school clubs which provide formal childcare for working parents. Some run youth clubs for teenagers, others provide a meeting place for parent and toddler groups. Most have provision for children with disabilities, and some are especially geared for these children. They all have their own buildings as well as outdoor spaces and play structures; each has its own unique character.

Adventure playgrounds have a more important role in the lives of children than just being a distraction from more dangerous, or socially unacceptable activities. The staff of one

playground, in planning their activities, said: *"the direction we are heading is one where the playground is an integral part of the community and is recognised as a place where children can continue informal learning in the evenings after school. Not only craft and education skills, but social skills such as honesty, caring for others and trust which will stand them in good stead in the community outside the confines of the playground"*

Sources: <http://www.londonplay.org.uk>; <http://www.arunet.co.uk>

Children need supportive neighbourhoods

As children grow older and become more competent, they are naturally drawn to move further from home and to rely increasingly on their neighbourhoods for companionship, stimulation and a wider range of experience. A good neighbourhood enhances development on every front by providing a richness of settings, relationships and opportunities that can engage children's minds, enlarge their social world and contribute to their skills, understanding and developing identity. A good neighbourhood is one that makes it inviting and possible for children to move safely into this larger, more complex world, and that supports their development as contributing citizens.

Drawing on the observations of children from low-income communities around the world, researchers from the Growing Up in Cities project have identified a number of qualities that make a good neighbourhood. It is a place where people of all ages can interact with one another, where groups of friends can gather to talk and socialize, where young people can move about freely and safely, where there are some shared values and goals that include everyone, and where it is possible for a community to enjoy the activities and rituals that define it. By contrast, neighbourhoods that leave children and young people feeling alienated and unsupported are those where they are socially excluded or stigmatized for various reasons, or geographically isolated from opportunities; where they lack transportation; where they are bored for want of anything to do; where they are fearful of harassment and crime; where traffic dominates, and where there is a general sense of dilapidation and neglect. Children are quick to point to litter, disrepair and a lack of basic services, and to see these physical conditions as a humiliating reflection of their own worth.⁷¹

There are certainly communities that offer the sense of opportunity, social inclusion and constructive interaction that children crave. However, a disturbing amount of research with children and young people around the world reveals that they commonly experience a sense of exclusion from their own communities – whether because of fear, an absence of real community life in their neighbourhoods, discrimination against certain groups, or a lack of provision for their social needs.⁷² The resulting sense of alienation can be dangerous in many ways, both to young people's personal development and to their larger society. Being sidelined, for whatever reason, from an active community life can limit the chances for positive growth, development and integration into society. It can also cause young people to look for a sense of belonging and meaning in other, often less constructive, ways.⁷³

In some urban communities, a lack of investment and care results in barren, rundown neighbourhoods lacking facilities. In other cases, violence, crime and local tensions mean that people are reluctant to be involved in the public domain. Often these conditions go together. There are no simple solutions. However, a number of environmental modifications have been demonstrated in various cities to improve the quality of neighbourhood life and the degree of positive interaction between people. Any measures that encourage the regular presence of

residents in public space – street lighting, sidewalks, benches and plazas, parks, locally managed shops and facilities, measures to slow down or restrict traffic, access for those with disabilities, regular maintenance and waste collection, can also be viewed as measures to increase control and involvement, and to reduce feelings of insecurity and alienation. Places where children can play safely, space for markets and small scale livelihoods, clubs and meeting places, facilities for playing sports, places where people can meet and talk, or just sit and watch what’s happening, can all serve to relieve the stresses of living in overcrowded and under-resourced homes. These kinds of measures are important for girls as well as boys, for women as well as men. When there is an active community presence, this tends to discourage anti-social behaviour and to make an area safer and more pleasant for children and everyone else as well. Fear and insecurity are most effectively addressed when local residents feel a sense of involvement and control over their neighbourhood space.⁷⁴ Solutions targeted at public space with access for all are far more successful in this regard than are privatized spaces, which can end up contributing to the exclusion that feeds frustration and tensions.

Research suggests that the presence of trees and vegetation may play an especially important role in the quality of social interaction in common space. This may appear to be a frivolous concern, when there are so many other pressing problems in low-income neighbourhoods. However, a series of carefully controlled studies has found that the presence of vegetation reduces stress and mental fatigue, increases interaction among neighbours and decreases rates of crime and antisocial behaviour.⁷⁵ Children have been found to play more creatively in green surroundings, to interact more positively with adults, and to perform better in tests of their cognitive performance.⁷⁶ Natural surroundings may in fact be as important to the psychological health of urban children and their families as clean water is to their physical health.

Young people can be the victims of anti-social behaviour; but they can also contribute to a general sense of fear and anxiety. In many urban neighbourhoods, there are escalating levels of youth delinquency, violence and gang-related criminal activity. Social exclusion and the lack of opportunity have been widely identified as contributing factors. Although there are calls for increased security and tough responses, alternative measures, emphasizing prevention, are gaining increased attention internationally. There is a growing consensus regarding the relative success and cost-effectiveness of investment in young people. Approaches include a recognition of young people’s right to public space and the importance of involving them in the planning and delivery of local programmes and facilities.⁷⁷ Often young people turn to anti-social behaviour out of boredom and a lack of alternative opportunities – neighbourhoods with recreational facilities and opportunities for constructive involvement have been found repeatedly to have fewer problems with gang violence.⁷⁸

It is important to remember that girls have the same needs for companionship, exercise, play and community life as boys do. But in many countries and communities, their opportunities are far more limited, especially as they reach puberty, when it may no longer be considered acceptable for them to socialize outside the home. In part this is a response to cultural norms, in part a concern about safety, and an expectation that girls will help with household work. Whatever the case, the response on the part of local authorities must be carefully considered. Responding only to the needs of boys is not sufficient. Opportunities for girls have to be supported within the framework of local preferences. It may be necessary in some cases to create a special place within a community where girls and young women can meet together with space for recreation and socializing. Groups of girls together will be best able to identify their own priorities. Certainly it is not acceptable that girls be restricted primarily on the basis of safety – rather, attempts should be made to create communities where their safety is actively addressed .

Table 4: Children’s recommendations and priorities for the improvement of their neighbourhoods

Maintenance, repair and upgrading	<p>Repairs of sewers and drains Toilets that don’t smell Water taps at our houses Get rid of bad smelling garbage Cover the open drains Prioritise places where children play for clearing litter and waste. Repairs to schools and school equipment Clean schools with water and toilets</p>
Places for play and recreation	<p>Lighting of places where children like to play after dark Identify areas where there is not enough recreation space relative to population Train staff in parks and swimming pools to work with children to reduce harassment and violence in recreation areas. Work with children and local residents to identify spaces near schools and homes that can be upgraded and secured for play. All-weather surface for sports Consider creating protected rooftop play. Convert waste dumps into places for play Places and resources for both boys and girls</p>
Public space	<p>More squares, parks and nature areas More places to meet and socialize Tree planting. Make pedestrian areas Don’t separate space for young people and children from the life of their communities Street lights</p>
Traffic and children’s mobility	<p>Provide frequent and safe crossings to children’s amenities such as parks and schools. Consult children about their placement. Repair faulty traffic signals rapidly. Install speed bumps, and reduce speed limits Create cycle tracks Make sidewalks wider Close the main city streets to traffic once a year for special events Make it easier for those who are disabled to move around Offer free or reduced fares on public transport for children below a certain age. Consider special weekend and holiday buses to take children and their families to popular recreation places.</p>
Security	<p>Better security in low-income areas Police who do their job and aren’t lazy Street lights and roving guards at night Install adequate street lighting and prune trees that obscure lights Train members of the police force to listen to and assist children and to take threats against children seriously. Produce public awareness programmes about children’s need for protection from bullying, harassment, crime and abuse. Create “safe havens” for children in violent or troubled neighbourhoods</p>

Source: This is a compilation of recommendations drawn from children, adapted from papers in a recent issue of Environment and Urbanization on urban children, vol 14 No. 2. These ideas come from children in Brazil, South Africa, the Philippines and Italy.

Children need a say in the shaping of their environments

The right of children to have a voice is not an aspect of children's rights that is well received everywhere. It is often assumed, in fact, that this undermines the values of respect and obedience from children, placing children's whims on a par with the hard-earned knowledge and experience of their elders. In fact, projects from around the world which have drawn on children's participation in decision-making about their neighbourhood surroundings have indicated how seriously they respond to the opportunity to offer their views and contribute their energy. Their suggestions are usually well-considered and insightful, often pointing to issues that adults might overlook or dismiss, but which are nonetheless important. Children from a number of overcrowded urban communities, for instance, have suggested that a quiet well lit community space where they could gather to do their homework might make a difference to their achievement in school. This is not an idea that generally occurs to adults.

Aside from being experts on their own needs and having the capacity to contribute in practical ways with their ideas and energy, children and young people have the opportunity to learn a great deal by taking part in the planning and management of their communities. The capacity to contribute responsibly as part of civil society is not something that just happens once someone reaches adulthood. It calls for skills that have to be acquired with practice. There is no better way for children to learn about the responsibilities of citizenship and to gain a sense of their own capacity to contribute than by helping to shape the environments that they use every day and that they depend on for their own well-being.⁷⁹ David Satterthwaite's paper on governance has discussed in more detail a number of cases where children's involvement has been productively used in this way.

Conclusions

Urban children in poverty are more likely to live in marginal areas that lack basic services, more likely to be undernourished and vulnerable to disease, more likely to face safety hazards as a result of overcrowded housing and inadequate space for safe play, and less likely to receive the quality of care that might buffer them from these risk factors because of the levels of stress and heavy time burdens faced by their caregivers. These children are also more likely to face the upheaval of eviction, more likely to endure heavy traffic, noise and overcrowding on a daily basis, more likely to lack access to the restorative effects of inviting common space and to the range of enriching opportunities that can foster their positive development.

The extent of the concerns and objectives discussed here may appear overwhelming to local officials who have not been accustomed to thinking in terms of the range of children's environmental needs. It is important to remember, however, that these issues are linked in numerous ways. Efforts in one area tend to lead to improvements in another. Security of tenure and affordable housing solutions, for instance, are proven approaches to promoting family stability; this stability, in turn, tends to lead to greater investment in the local community and to stronger community ties. When residents are secure and well organized, they are far better able to collaborate with local government and to develop cost-effective ways to achieve basic service provision. This leads to healthier and happier children, less stressed caregivers, and more productive families. Improved community involvement, at the same time, contributes to improving the quality of neighbourhood space and the range of positive opportunities that are available to children and young people. The rights of children and the strengths of their communities are hard to separate – a supportive local environment contributes to the optimal development of both.

Box 4: Basic principles for local authorities

Children are at higher risk than adults from poor conditions in their living surroundings.

The risks to children are not only immediate; they can also be long term, affecting their well-being and productivity for the rest of their lives.

Children's particular vulnerabilities and requirements call for different standards, policies and regulations on the part of those who manage cities.

The longer investments in children's needs are put off, the greater the costs will be of repairing the damage – both to individuals and to society.

Children and those who care for them are best placed to identify the issues that affect them, and the solutions that will work; it is critical to work collaboratively with them.

Improving the standard of living for children improves it for everyone else at the same time.

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