

# Urbanisation and Nutrition in Low- and Middle-Income Countries

Urbanisation—the demographic transition from rural to urban living—presents a set of challenges and opportunities for tackling malnutrition in low- and middle-income countries. Already more than half of the world's population live in urban areas. Between now and 2030, the global urban population is expected to grow by more than one billion people, with most of this growth taking place in middle-income countries predominantly in Asia (United Nations Department of Economic and Social Affairs, 2014). Nutrition interventions tend to focus on rural locales, notably in the humanitarian, agriculture and food security sectors. Thus, it is essential to increase the understanding of, and effectively address, the challenges associated with urbanisation and nutrition.

Maximising the Quality of Scaling Up Nutrition (MQSUN) is funded through the United Kingdom's (UK) Department for International Development (DFID) and provides evidence-based technical expertise to DFID country offices and the Scaling Up Nutrition (SUN) Movement for the design and implementation of effective multisectoral nutrition programming and policies.

In 2015, MQSUN provided support to DFID to review the current scale of urbanisation and nutrition in low- and middle-income countries (LMIC) and the predicted trends up to 2030, to appraise what works in urban settings and how this context differs from the rural context with regard to nutrition programming and to ascertain the primary research gaps. The review identified effective nutrition-specific and nutrition-sensitive interventions for tackling undernutrition within the urban context. From these interventions, MQSUN recommended key nutrition actions for health, agriculture, social protection and physical environment that should be implemented at scale, as well as where evidence is limited to support essential nutrition action.

The methods for the review included an initial scoping of the literature according to a set of identified workstreams; a compilation of statistical data related to urbanisation and nutrition from the United Nations Department of Economic and Social Affairs (UN ESA), United Nations Human Resettlements Programme (UN Habitat), World Health Organisation and World Bank; a rapid review of published and unpublished materials related to both interventions and causal pathways for urbanisation and nutrition; and an assessment of the volume and quality of evidence related to nutrition programming within an urban context. The results of this review will be key to supporting programming and policy related to urban nutrition.

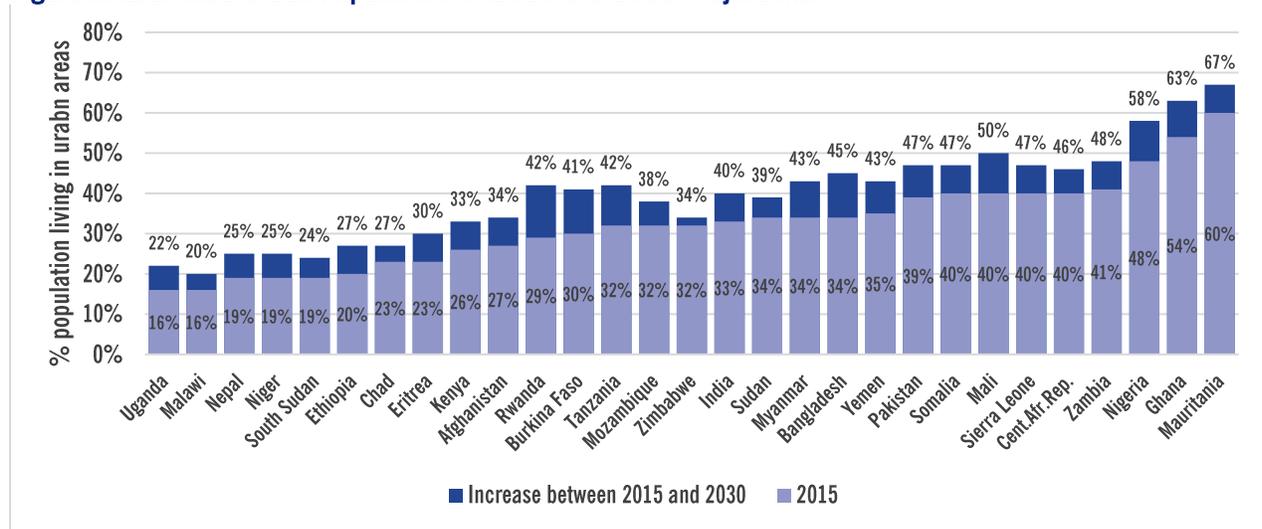
« As urbanisation increases globally, strategies and evidence-based action to address malnutrition within this context will be essential. »

## Trends, Risk Factors and Key Findings

### Trends

It is estimated that by 2050, two-thirds of the world’s population will live in cities (UN ESA, 2014). Bangladesh, India, Nigeria and Pakistan have some of the greatest and highest projected urban populations. India alone currently accounts for about 10 percent of the world’s urban population, a figure that is projected to increase to 17 percent by 2030. Figure 1 outlines current and projected urban populations.

**Figure 1. Estimated Urban Populations in 2015 and 2030 Projections.**



Urban areas often have informal, illegal settlements and slums. In 2012, it was estimated that about a third of the urban population in the developing world—about 860 million people—lived in slums (UN Habitat, 2013). Most of the urban poor live in large and mid-sized cities in South Asia and sub-Saharan Africa (Muggah, 2012). These locales are especially important to consider for the prevalence of malnutrition. Table 1 outlines a few key trends that characterise urban undernutrition.

**Table 1. Key Urbanisation and Nutrition Trends.**

Trend	Finding
Urban child undernutrition varies	For children under age five, urban prevalence rates of undernutrition vary greatly by country.
Undernutrition is lower in urban areas	Rates of undernutrition in women and children are generally lower in urban areas compared to rural areas. However, national-level data mask large differentials within urban and rural settings (Herrador et al, 2014). Young urban children are taller and heavier than their rural counterparts in almost all LMIC (Paciorek et al, 2013).
Stunting prevalence rates are similar in urban and rural areas	Stunting prevalence rates are similar in urban and rural areas when adjusted for economic status, since a higher proportion of the urban population are in higher socioeconomic groups. Stunting levels increase significantly in more impoverished populations in both urban and rural areas, but such differences are more apparent in urban areas.
Double burden of malnutrition	The coexistence of underweight and overweight/obesity within the same population is common in urban areas (Shrimpton & Rokx, 2012).
Nutrition-sensitive programming	The quantity and quality of evidence on nutrition-sensitive programming in urban settings are limited.

Trend	Finding
High population density	Cities have high population densities with a more diverse-heterogeneous range of stakeholders and wider disparities in health, socioeconomic status and culture within small geographic areas.
Poor and female-headed households are most vulnerable	The poorest and most vulnerable segments of urban populations—for example, poor, female-headed households or households with high dependency ratios—often experience vulnerabilities and threats to nutrition that rival their rural counterparts (Mohiddin, Phelps & Walters, 2012).
Local government involvement	Local government authorities play a larger role in daily life in urban settings, compared to rural locales.
Lack of livelihoods	The population in sub-Saharan Africa is growing without the same amount of employment opportunities, resulting in complex patterns of migration and settlement in ‘hollow’ cities without services (Muggah, 2012).
Scale up	There is limited evidence on the ‘scale up’ of effective rural nutrition programmes or interventions to urban areas (Ainsworth & Ambel, 2010).

## Risk Factors: Urban Diet, Food Security and Sources of Food

### Food Security

In urban areas, households lack access to food that they produce themselves. Most consumed food is purchased (90 to 100 percent), and food expenditures account for more than half of the urban household budget. Therefore, informal markets play a key role in poor urban household food security (Cohen & Garrett, 2010; Tacoli, 2015). Households often depend on poorer-quality and less hygienic purchased foods. The lack of legal access to land for their own food production and a reliance on imported food items exacerbates the situation.

### Food-Based Coping Strategies

On average, urban incomes are higher—allowing households to eat more meat and milk and a greater variety of fruits and vegetables (Tacoli, 2015; Frayne et al, 2010). However, in times of food or income insecurity, households adopt risky coping strategies, such as accumulating high levels of debt, eating less preferred foods and skipping meals. During these times, households often reduce the quality and quantity of their diet and eat mainly staple foods like rice and wheat. Households may also reduce non-food expenditure; for example, by increasing time at work and foregoing health care (Tacoli, Bukhari & Fisher, 2013). In addition, rising food prices affect urban households more, as they often resort to inexpensive, processed foods to meet their nutritional needs (Levay et al, 2013). The poor are especially vulnerable to rises in food prices, which can lead to poor child nutritional status if parents are unable to buffer their children from these shocks. Maternal and child nutritional status, especially micronutrient status, is often affected while sacrificing dietary quality over quantity (Ruel et al, 2010). Informal safety nets are often lacking in urban settings compared to rural areas. When households create a safety net to buffer against shocks, urban agriculture appears to protect nutrition rather than improve it.

### Food Vendors, Food Preparation and Informal Markets

In overcrowded urban homes, the space for food preparation and storage is limited and cooking facilities are poor. The high cost of cooking fuel is also linked to stunting in children (Herrador et al, 2014; Tacoli, 2015). Informal markets, such as convenient street foods and processed, ready-to-eat foods, play an important role in the diets of poor urban residents. Informal markets and vendors set up where the need is greatest, and foods can be purchased in small, affordable amounts. Street foods can also be very unhealthy if not regulated. They are often not prepared hygienically, and they can contribute to rising levels of urban obesity and food-borne diseases.

Supermarkets have an increasingly important role as a source of purchased foods in urban areas, but their significance for the livelihoods of the urban poor is not clear. Although their food prices are lower than other sources, supermarkets are not usually located close to slums and the poor can only afford to buy small quantities of food at a time.

### **Increased Risk of Overweight/Obesity**

Urban diets often contain more saturated and trans fats, sugar and salt, and less fibre. These diets combined with inactive lifestyles raise the risk of obesity and chronic diseases (Cohen & Garrett, 2010).

### **Livelihoods**

Livelihoods in urban areas are very diverse. The poor often work long hours in poor conditions for low wages in places a long distance from home. Most work in the informal sector—such as construction and factory work, rickshaw driving and street vending. In addition, the government, the private sector and agriculture are important sources of both formal and informal work, such as in food processing, transport and sales (Ruel & Garrett, 2004). Seasonality affects jobs, too, as increased migration from rural areas occurs when labour needs are low—such as post-harvest—and increases pressure on scarce urban jobs, leading to food insecurity. In urban settings, women participating more in the workforce affects the quality of childcare and feeding practices. Recent rural migrants are especially vulnerable, since they lack education and social support networks. Unemployment, underemployment and child labour are all characteristic of urban poverty in many countries, especially in sub-Saharan Africa (Baker, 2008).

## **Programming Implications**

### **Enabling Environment for Policy and Planning**

It is necessary to have an enabling environment to support the scale up of urban nutrition programmes, including relevant government policy, stakeholder participation and capacity building, an established evidence base and strengthened community action. However, evidence is limited for urban nutrition policy and planning and what strengthens the enabling environment. Trends demonstrate that facilitated and supported action research by multisectoral teams at an urban level can help in the planning and implementation of coordinated interventions to address maternal and child undernutrition. In addition, weaknesses in human and organisational capacities at all levels constrain the pace and quality of developing and implementing operational plans for nutrition. Therefore, continued use of a multisectoral and multistakeholder approach with private, public and civil society is recommended. However, challenges exist in working with such a great diversity of stakeholders and strong political influence. To scale up urban nutrition, repeated cycles of action, reflection and re-planning are required.

It is also important to promote urban nutrition surveillance by building the capacity of municipal governments and other official agencies tasked with surveillance to routinely sample urban slums to focus on the urban poor. It is important to identify, train and support community groups to help implement the urban nutrition plan, including the surveillance activities. In addition, it is necessary to address urban housing, as informal settlements and slum areas suffer a lack of secure tenure, which is a major constraint to investing in infrastructure and services in slum areas. Table 2 summarises the overall key findings and programme implications from the review.

**Table 2. Key Findings and Programme Implications.**

Risk Factor	Findings	Programme Implications
<b>Targeting beneficiaries</b>	Challenges with targeting and ensuring sustained participation of targeted beneficiaries (e.g., mothers of young children) in urban areas (Gartner et al, 2006)	<p>Target the poorest of the urban population, as it is most cost-effective</p> <p>Target street/market vendors for hygiene and food safety programmes</p> <p>Strengthen the ability of the poor to express their needs, including by connecting them to local government</p> <p><i>Targeting should be at the individual or group, but not at the community (geographic), due to the heterogeneity of welfare within small areas (Saleem et al, 2014) and the mobility of the populations</i></p>
<b>Environment</b>	<p>Indoor air pollution and lack of sanitation can seriously affect health</p> <p>Outdoor air pollution is high</p>	Promote social and behaviour change (SBC) integrated with provision of improved water and sanitation (e.g. through support for women’s groups, schools and workplaces)
<b>Equity and resilience</b>	<p>Undocumented individuals/households</p> <p>Gender dynamics related to livelihoods, household structure, decision-making and safety/security</p>	<p>Provide for childcare as an alternative means to support women’s livelihoods and to improve nutrition</p> <p>Promote policies and programmes that reduce the cost of food for the urban poor, including food subsidies and urban agriculture</p> <p>Promote regular urban food and nutrition security surveys to detect external shocks</p>
<b>Delivery mechanisms</b>	Where partnerships between urban poor organisations and local governments exist, much more has been achieved (Satterthwaite, Mitlin & Patel, 2011)	<p>Use mobile health teams and community-based outreach workers who are trusted by the population</p> <p>Work through community-based organisations</p> <p>Involve all local government authorities in targeted interventions</p> <p>Use technology and mobile phone messaging</p> <p>Integrate income activities within health programmes</p>
<b>Livelihoods</b>	<p>Urban livelihoods are diverse and low wage</p> <p>Work environments are often incompatible with childcare</p> <p>Child nutritional status is sensitive to urban household livelihoods</p> <p>More women work away from home</p>	<p>Address variable economic conditions when designing and evaluating programmes</p> <p>Focus on providing credit rather than pursuing a sector focus, as might be done in rural areas</p> <p>Plan substitute childcare and strengthening family structure and social networks to improve childcare and nutrition</p>

## Nutrition and Health Programming

Urban areas have higher rates of stunting compared to acute malnutrition. Urban populations are also often characterised by a ‘double burden of malnutrition’ (dual existence of child undernutrition and adult overweight/obesity) within the same household. Changing food prices, poor food hygiene, food security, dietary practices and health outcomes that directly impact nutritional status are important causes of urban malnutrition. Insights on ‘what works’ within urban contexts is less clear than in rural locales, and less is known regarding drivers of urban undernutrition for adolescents and women of reproductive age compared to young children. In terms of nutrition-specific interventions, evidence is skewed to more conventional approaches, such as nutrition education, micronutrient supplementation and supplementary feeding programmes. Although some intervention studies highlight particular challenges with targeting and compliance in urban settings, no inferences are drawn on urban adaptations or critical success factors for urban nutrition programming. In terms of nutrition-sensitive health programming, evidence follows two themes—family planning integration and the adoption of a life-cycle approach in service delivery. Table 3 outlines drivers for design consideration in nutrition and health interventions.

**Table 3. Drivers for Design Consideration in Urban Nutrition and Health Interventions.**

Nutrition-Specific Interventions	
<i>Infant and young child feeding (IYCF) practices</i>	Social and behaviour change (SBC) affects short-term improvements in IYCF knowledge and practices—and thereby infant or child nutritional outcomes (Saleem et al, 2014; Akter et al, 2012). Nutrition education interventions require repeated contacts. SBC can also be implemented with nutrition services, such as growth monitoring or micronutrient supplementation.
<i>Micronutrient supplementation</i>	Micronutrient supplementation of children has demonstrated promise in improving micronutrient levels and height-for-age in urban settings. Food fortification is also shown to be effective at improving nutritional status, but overall the evidence in urban settings remains limited.
Nutrition-Sensitive Health Interventions	
<i>Integrated management of childhood illnesses and integrated community case management</i>	This integrated health package can make full use of both community-based and facility-based service delivery platforms to improve child nutrition. Evidence demonstrates these methods are effective in urban settings (Burnham, 1997).
<i>Integration of family planning</i>	In urban areas, high fertility rates compromise food access and contribute to poor food use and/or consumption. Family planning improves resilience for women, by reducing high-risk pregnancies and maternal mortality, and contributes to household food security (Smith & Smith, 2015). However, the published literature provides little insight on how the above relationships play out in urban settings.
<i>Holistic life-cycle approach in service delivery</i>	Integrating nutrition into health services requires a life-cycle approach and targeting of key population groups, including infants, young children, adolescents, non-pregnant women of reproductive age, pregnant women and caregivers of young children along the continuum of care from pre-conception through adulthood. It can be challenging to adapt proven, evidence-based models for urban populations.

## Agriculture Programming

There is limited evidence for urban and peri-urban agriculture and the impact on nutritional status. However, these activities have an important role in providing income—thereby increasing resilience. The most important pathway is self-production for self-consumption to increase the diversity of food available to a household, specifically the availability of fruits and vegetables. The second pathway is self-production for the sale of food towards providing household income—though this depends on whether the additional income is used on nutritious food. Findings reveal that, for urban programming, nutrition-sensitive interventions need to be integrated, such as nutrition education in combination with home gardening. Urban agricultural production has a more important role for urban employment opportunities and to help diversify income than its role as a contribution to household food availability and access. Table 4 outlines drivers for design consideration for urban agriculture interventions.

**Table 4. Drivers for Design Consideration in Urban Nutrition and Agriculture Interventions.**

Agriculture Interventions	
<i>Lack of space</i>	Urban agriculture requires simple, sustainable, locally appropriate irrigation methods.
<i>Lack of land tenure and legality of activities</i>	When agriculture is practiced on public, community or institutional land, the use of these spaces is often not regulated and lacks legal protection for producers. In many cases, much of the urban agriculture occurring is technically illegal, and so farmers do not make investments to improve production (World Bank, 2013).
<i>Lack of safe water for irrigation</i>	Untreated water is often used for irrigation, with related health risks (World Bank, 2013; Lee-Smith & Prain, 2006).
<i>Urban livestock</i>	Health risks exist from raising livestock in more crowded conditions (Lee-Smith & Prain, 2006).
<i>Distance between residence and land being cultivated</i>	Distance to urban gardens can constrain participation; urban gardens should be accessible by public transportation (Karanja et al, 2010; Wills, Chinemana & Rudolph, 2010).

## Equity and Resilience

Data on equity and resilience for undernutrition programmes within urban contexts is still limited. There is limited information on the (1) gender differences in child nutrition outcomes and (2) the documented relationship between a woman’s nutritional status and that of her children. Table 5 outlines some key findings and programme implications for equity and resilience.

**Table 5. Drivers for Design Consideration in Equity and Resilience Interventions.**

Equity and Resilience Interventions	
<i>Breastfeeding</i>	Urban areas tend to have poorer breastfeeding practices (e.g., early initiation and exclusive breastfeeding), but not breastfeeding duration. Improved IYCF should focus on urban realities.
<i>Urban livelihoods designed for women</i>	Women’s/girls’ access to livelihoods, safe and secure living conditions in urban slums and informal settlements, and high-quality infrastructure (to minimise drains on their time, financial resources), should all be prioritised to improve female empowerment (UN Habitat, 2012).
<i>Poverty</i>	There is no shortage of evidence on the link between socioeconomic status and undernutrition and the higher undernutrition burden in rural areas relative to urban areas. However, systematic reviews suggest that there are intra-urban differences in child undernutrition due to wealth and income differences amongst individuals and households (Fotso, 2006).
<i>Social protection schemes</i>	Social protection schemes targeting the extreme poor, such as cash transfers, must be sufficient enough to facilitate nutritious food purchase within realistic food prices.

## Physical Environment & Water, Sanitation and Hygiene

Urban populations often do not have access to safe drinking water or adequate sanitation. Strong evidence exists that associates urbanisation, specifically lack of water, sanitation and hygiene (WASH) facilities, with higher rates of infectious disease, and more limited evidence that it impacts child growth (Dangour et al, 2013; Alirrol et al, 2011). The poorest urban residents often live in very unhealthy and dangerous conditions, sometimes with limited access to essential infrastructure. In slum and informal settlements, environmental hazards are common, including overcrowded and poor-quality housing, contaminated water and open sewerage (Sverdlik, 2011). To be effective, WASH interventions must be tailored to the local context. Table 6 outlines drivers for design consideration for urban WASH interventions.

**Table 5. Drivers for Design Consideration in Urban Water, Sanitation and Hygiene Interventions.**

WASH Interventions	
<i>Promotion of hygiene and clean environment</i>	The promotion of key hygiene practices (handwashing, treatment and safe storage of drinking water, safe disposal of faeces and food hygiene) can be effective at reducing urban undernutrition only if access to safe water and basic sanitation also exists. Hygiene promotion contributes to a reduction in stunting, either through the impact on diarrhoea and the link between diarrhoea and stunting (Bhutta et al, 2008) or through impact on oral–faecal transmission (Humphrey, 2009). Although strong evidence of the nutrition impact pathways within the urban context is lacking, it is evident that continuous exposure of children to contaminated faecal matter is the most dominant pathway.
<i>Indoor air pollution</i>	Indoor air pollution is a risk in urban households that use solid fuels (biomass and coals) without proper cooking facilities and ventilation—causing respiratory illness, which contributes to poor nutritional status, low birth weight and stillbirth (Sverdlik, 2011). Improved and clean cooking should be encouraged.
<i>Sanitation</i>	Piped sewerage has been shown to be the most effective at improving sanitation. Decentralised sanitation (such as latrines or septic tanks) is more feasible than piped sewerage in slums and informal settlements. However, a lack of security near dwellings can affect the use of sanitation facilities, for example, at night. Communal toilets can be an effective approach to serve groups of households.
<i>Safe water access</i>	No specific evidence demonstrates the benefit to nutritional status of interventions that only improve access to clean water in urban areas. The interventions must be part of a larger package of integrated WASH programmes or of slum improvements.
<i>Food safety and hygiene</i>	Evidence suggests a need to address food hygiene—not just conventional issues such as safe water and sanitation—given the reliance on foods prepared outside the home in urban areas. Food preparers, such as street and market vendors, are important target groups for urban nutrition improvement efforts.

## MQSUN Resource

Tuffrey V, Espeut E. *Addressing Undernutrition in the Context of Urbanisation in Low- and Middle-Income Countries*. MQSUN Report. PATH and DFID; December 2015.

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