

# TOWARD SDG 2: FOOD SECURITY AND URBANIZATION IN THE GLOBAL SOUTH

David Celis Parra, Krista Dinsmore,  
Nicole Fassina and Charlene Keizer

## Key Points

- Urban food insecurity is distinct from that experienced in rural areas and must be addressed through a different set of policies.
- While supermarkets are increasingly prevalent in urban centres of the Global South, the informal economy and state food distribution programs continue to play an important role in meeting food security needs of the urban poor.
- The United Nations' Sustainable Development Goal (SDG) 2, as part of a new international directive, recommends that governments aim to improve food security and nutrition over the next 15 years in response to the global challenge of fostering sustainability.
- SDG 2 provides an avenue for governments to create and develop food security-related policies and regulations. This brief recommends governments support the role of the informal food economy, integrate non-food issues related to food security (such as spatial planning and infrastructure), collaborate with supermarkets to create policies catering to the poor and track food consumption patterns to develop strategies for improved food options.

## Introduction

In light of the United Nations' SDGs<sup>1</sup> and their global hunger directive, in particular Goal 2 to “end hunger, achieve food security and improved nutrition,” it is clear that food security will be a major part of the international development agenda over the next 15 years (UN Department of Economic and Social Affairs [UN DESA] 2014b). While food security is a critical concern for the international community, there is a need for national governments in the Global South to include food security concerns in their national policies.

The Food and Agriculture Organization (FAO) defines food security as “existing when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996). It is composed of four pillars: the availability of sufficient quantities of food of appropriate quality; access to adequate resources for acquiring appropriate foods for a nutritious diet; the conditions under which food is utilized; and stability or shock resistance of food access (ibid.). As the trend of rural to urban migration in the Global South places increased stress on urban food security systems, it is unlikely that SDG 2 will be achieved without proper policy considerations for cities.

This brief focuses on policy suggestions for national governments in the Global South on how to improve sustainable, healthy food access in urban areas, and

1 The SDGs are the United Nations' new 15-year international development agenda comprised of a list of (currently) 17 goals with specific targets and benchmarks to follow up on the achievements of the Millennium Development Goals that expire in 2015.



# CIGI Graduate Fellows Policy Brief Series

The CIGI Graduate Fellowship (CGF) is an award granted to select students of the Balsillie School of International Affairs (BSIA) enrolled in either the Master in International Public Policy or the Master of Arts in Global Governance programs. The CGF program complements the unique graduate studies experience at the BSIA, and is designed to provide students an opportunity to gain mentorship and guidance from senior scholars and policy practitioners, as they advance their own policy research and writing skills. The CGF program benefits from the resident expertise of the BSIA's three partner institutions — University of Waterloo, Wilfrid Laurier University and CIGI — which collectively have fostered an environment of critical thinking, advanced research and peer learning.

Under the program, clusters of three to four CIGI Graduate Fellows are selected to participate in research projects based at either CIGI or the BSIA. Working under the direction of the project leader/mentor, each CIGI Graduate Fellow will be responsible for conducting intensive research on a sub-area of the project.



The Balsillie School of International Affairs is an independent academic institution devoted to the study of international affairs and global governance. The school assembles a critical mass of extraordinary experts to understand, explain and shape the ideas that will create effective global governance. Through its graduate programs, the school cultivates an interdisciplinary learning environment that develops knowledge of international issues from the core disciplines of political science, economics, history and environmental studies. The Balsillie School was founded in 2007 by Jim Balsillie, and is a collaborative partnership among CIGI, Wilfrid Laurier University and the University of Waterloo.



**BALSILLIE SCHOOL**  
OF INTERNATIONAL AFFAIRS

identifies issues that need to be addressed to achieve this goal. Strategies proposed include use of formal and informal food channels, as well as direct government intervention. National governments are targeted because they are the signatories of the SDGs and can coordinate with other levels of government to implement the policy recommendations necessary for improving food access.

## Background

Urbanization<sup>2</sup> is changing the dietary choices available and how and where people in the Global South access food. In 2014, more than half of the global population (54 percent) lived within cities and by 2050, it is estimated that 66 percent of the population will be urban dwellers (UN DESA 2014a). High population density areas create greater demand for food, with the most dramatic consequences of rapid urbanization evident in slum areas,<sup>3</sup> where people spend a large portion of their disposable income on food (Matuschke 2009). Food must be accessible and available for urban residents at all income levels and in all types of urban settlements.

Supermarkets can bolster urban food security by strengthening supply and distribution chains of food in cities, where people are net food buyers.<sup>4</sup> The role and impact of supermarkets varies globally. Findings in countries such as India and Kenya suggest that supermarket patronage is primarily by middle- and high-income consumers, while in more advanced economies, supermarkets can offer lower prices that benefit the poor (Kinnaman and Takeuchi 2014; Tschirley, Muendo and Weber 2004). In the case of countries such as Mexico and China, evidence suggests a link between supermarkets and unhealthy food consumption patterns that are increasing obesity levels in cities (Castellanos 2014; Wang and Shi 2012).

Informal retailers are economic actors operating outside of government regulation that play prominent roles in providing access to fresh produce and other foods in cities. Informal food

- 2 Urbanization is defined as growth in the share of people living in high population density areas.
- 3 Slum conditions are defined by the United Nations as lacking at least one of the basic conditions of decent housing: adequate sanitation, improved water supply, durable housing or adequate living space. Slums develop as the formal housing market is unable to cater for the number of migrants, many who are extremely poor (UN-Habitat 2003).
- 4 Slum conditions are defined by the United Nations as lacking at least one of the basic conditions of decent housing: adequate sanitation, improved water supply, durable housing or adequate living space. Slums develop as the formal housing market is unable to cater for the number of migrants, many who are extremely poor (UN-Habitat 2003).

**Table 1: Country-level Issue Indicators of Food Security**

Issue Indicators	Mexico	China	Kenya	India
Proportion of urban population (%)	78.4 (2012); 88 (projected 2050)  (UN DESA 2014a)	54 (2014); 76 (projected 2050) (World Urbanization Prospects)  (UN DESA 2014a)	25 (2013); 43.9 (projected 2050)  (World Bank 2014)	32 (2013); 50 (projected 2050)  (UN DESA 2014a)
Malnutrition rate (%) (child stunting)  (UNICEF, n.d.)	13.6 (2012)	9.9 (2012)	35.3 (2012)	48 (2013)
Obesity rate (%)  (World Health Organization [WHO] 2014)	28.1	6.9	7	4.9
Population living in slums (%)  (UN-Habitat 2015)	16.6 (2015)	31 (2015)	54.8 (2015)	32.1 (2015)
Number of people living in urban slums (millions)	12.8 (2015) (UN-Habitat 2015)	177 (2014) (UN DESA 2014a)	4.4 (2014) (UN-Habitat 2015)	116 (2014) (UN DESA 2014a)
Food Security Rank  ( <i>The Economist</i> 2015)	35	42	80	69

Source: Authors.

sources include wet markets,<sup>5</sup> open-air markets, travelling markets, street hawkers and other small-scale vendors. Diverse types of convenience stores and government-run public distribution systems can also be important food sources. Any combination of these sources could be a means to achieving food security, provided that food policy promotes all four dimensions of food security in relation to the SDG 2.

<sup>5</sup> Wet markets are a group of stalls in a stand-alone structure with the purpose of selling fresh fruit and vegetables.

## Method

In order to contextualize the issue and frame policy suggestions, this brief uses case studies to identify the food security concerns facing urban areas of the Global South. Locally appropriate adaptation and mitigation action needs to be taken into account when drafting policies to meet SDG 2. Table 1 illustrates some of the significant differences in four countries of the Global South: Mexico, China, Kenya and India. A high urbanization rate in Mexico coincides with a high obesity rate compared to

other countries. This is the result of a high level of consumption of unhealthy, non-nutritious foods. India and China have large numbers of people living in slums and the percentage of slum dwellers in Kenya represents more than half of the urban population. This is directly correlated to food insecurity, as demonstrated by the low food security index ranks in the cases studied (India, 69; China, 42; Kenya, 80; Mexico, 35). Furthermore, issues of child malnutrition are especially evident in India (48 percent) and Kenya (35.3 percent), which is directly connected to the food insecurity in these regions (see Table 1).

Keeping the four pillars of food security and the issue indicators in mind, this policy brief includes national and city-level analyses to provide a more complete picture of how food security can affect both national government policy making and local level outcomes. As urbanization rates increase, the need for cross-regional analysis becomes more important, as it is helpful in highlighting the common themes and concerns facing the urban poor.

## Case Studies

### Mexico: Supermarkets, Government Policy and Changing Diets

Supermarkets have been a fixture of the urban food retail economy in Mexico since the late 1940s, and have grown increasingly prominent in Mexican cities since the introduction of liberalization policies in the 1980s, when it became easier for foreign supermarkets to enter the market (Biles 2006). Economic liberalization intensified with the North American Free Trade Agreement (NAFTA) of 1994. While the number of foreign supermarkets has increased, many are still Mexican-owned. S. Clark, C. Hawkes, S. Murphy, K. A. Hansen-Kuhn and D. Wallinga (2012) argued that NAFTA changed the types of imports coming into the country — by introducing high fructose corn syrup-based sweeteners that replaced cane sugar sweeteners, processed foods and junk foods, as well as more dairy products, refined sugars and ready-to-eat dishes — and, thus, profoundly reshaped Mexican diets. Since supermarkets and convenience stores are the primary points of sale for these kinds of goods, modern retail is often blamed for the dietary shift (Castellanos 2014). However, it is clear that the price of staple foods, such as maize (the base ingredient in tortillas), have increased compared to fattier alternatives, which has contributed to the broad-based move away from healthier traditional foods (Wiggins et al. 2015). Informal markets, on the other hand, sell primarily locally produced and unprocessed foods, filling a social role, while supporting the traditional local diet and nutritious food options (Rajagopal 2010).

Mexico has comparatively high food availability, but its food security issues are primarily about health and nutrition (see

Table 1). This appears to be a food sovereignty issue, whereby Mexico has lost control over its food system and a new diet based on imported highly processed food is causing health issues (González Dávila 2010). Over the past two decades, a notable trend of increasing type 2 diabetes rates, as well as Mexico's newfound status as most obese country in the world, have caused concern (Clark et al. 2012). There was a 12 percent increase in the obesity rate between 2000 and 2006 and by 2012, 39.7 percent of Mexican adults were overweight and 29.9 percent obese (ibid.). This trend affects all socioeconomic groups (ibid.). Strikingly, the incidence of type 2 diabetes rose from 8.8 percent to 11.4 percent over the first five years that NAFTA was operational (Jiménez-Cruz and Bacardi-Gascon 2004). As such, poor nutrition and the resulting health issues have become major concerns of food security in Mexico.

While nutritious foods are often available and accessible in Mexico, consumption patterns suggest a preference for unhealthy imported foods and soft drinks to accompany meals (Clark et al. 2012). The Mexican government has begun to combat this by incentivizing healthier preferences. One initiative to improve child health has launched educational campaigns and laws pertaining to school children's diets (Castellanos 2014). A sales tax on soft drinks and beverages sweetened with high fructose corn syrup was introduced in 2014, the additional revenue from which is funnelled into social programs (*The Economist* 2014). While some assert that this sales tax negatively impacts the poor, given that low-quality foods are usually the most affordable, the government maintains that it is justified by the diet-related health problems in all socioeconomic groups. It is too early to determine the effectiveness of the policies, but government-led solutions will likely help curb demand of unhealthy foods, which would in turn help achieve SDG 2.

### China: Wet Markets, Supermarkets and Government Policy

Chinese urban consumers traditionally have a cultural preference for fresh vegetables and fruits acquired through wet markets operated by independent informal vendors, leading to relatively healthy diets (Li and Qian 2010). Surveys found that 60–70 percent of urban consumers purchased most of their fruits and vegetables from wet markets and 10–15 percent from supermarkets (Bai, Wahl and McCluskey 2006). This is changing rapidly, with overweight and obese citizens becoming a trend in Chinese cities. There are two factors contributing to this trend. The first is an increase in access to processed foods, sales of which are led by supermarkets by a significant margin (Hu et al. 2004). Supermarkets' urban food retail share is 30 percent by some estimates and growing (ibid.). Consumer studies found that Chinese urban consumers increasingly bought processed foods in supermarkets and fresh food in wet markets (Bai, Wahl

and McCluskey 2006; Zhang and Pan 2013). Supermarkets cannot compete with wet markets and other informal food vendors in the freshness and price of vegetables (Wang and Shi 2012). Structurally, supermarkets in China cannot benefit from economies of scale in fresh food production because most production is done by smallholder farmers.

The second factor is a decrease in the prevalence of wet markets due to economic development policies. The liberalization of the Chinese economy in the late 1970s brought about the liberalization of wet markets and the urban real estate market in 1998. This increased the opportunity cost of building new wet markets by raising the prices of new urban developments. The national government hoped the private sector would branch into food supply, previously a public responsibility, through the wet markets. However, other commercial buildings would bring more profit to urban developers. As a way to maintain an appropriate level of wet markets across cities, many municipal governments instituted zoning plans that required urban developers to include various public facilities, such as hospitals, police stations and wet markets, in their construction projects as a condition for getting a long-term lease on state-owned land (Zhang and Pan 2013). However, zoning regulations are often circumvented, violated or ignored. As a stand-alone structure with need for parking, ventilation, waste disposal and a large number of stalls, wet markets can only generate a low revenue stream (ibid.). Wet markets lower the overall value of a construction project, and, as places with much consumer traffic, are noisy and dirty. As a result, some developers prefer reserving allotted wet market space for supermarkets instead (ibid.).

Reduction in the number of wet markets per urban resident has led to increased fees for food vendors to operate their market stalls. Rising rental costs have forced vendors to either raise the prices of foodstuffs or exit the markets and engage in street hawking instead. This practice has been perceived as a nuisance in terms of traffic blockage, food waste and noise contamination, and as a result it has been either banned or regulated in Chinese cities (ibid.). There is a positive correlation between the spatial density of wet markets and children's nutritional intake (Wang and Shi 2012). However, the decrease in the number of wet markets is reducing access to healthy foods and encouraging patronage of supermarkets where consumers can purchase more processed foods and fresh produce is more expensive. Equitable access to nutritious food is essential to food security and ending hunger as stipulated by SDG 2.

### **Nairobi, Kenya: The Informal Economy and Access to Healthy Food**

Rapid urbanization in Kenya creates an imperative for addressing access to food in urban areas. The diffusion of supermarkets

throughout Kenya has improved access to food for middle- and high-income urban households (Ouma, Mwangi and Oduk 2013; Kimani et al. 2012). Supermarkets typically charge higher prices on most fresh fruits, vegetables and staple starches, such as maize, than informal vendors (Tschirley, Muendo and Weber 2004; Tschirley et al. 2010; Neven et al. 2006; Muyanga et al., n.d.). The informal food economy plays a prominent role in providing access to more affordable healthy food for the inhabitants of the capital city of Nairobi. It is estimated that over 80 percent of food budgets are spent in the informal economy and 2.2 million livelihoods rely on this economy, which is a large proportion of Nairobi's 3.1 million residents (Rockefeller Foundation 2013). As supermarkets consolidate in Kenya, the availability of healthy foods may increase. However, this does not translate into improved access to healthy food for the urban poor as they are blocked by high prices. As such, the sustainability of the informal food economy will help to maintain food prices that are affordable for the poor and achieve an increased level of food security as set out in SDG 2.

Kenya is among the world's most food insecure countries, ranking 80th of the 109 countries examined, and the national and local governments have taken a practical approach to addressing this problem (*The Economist* 2015). The national government implemented the Economic Recovery Strategy for Wealth and Employment Creation, aiming to broaden the tax base to include the informal economy (Ministry of Planning and National Development 2003). Following the national directive, Nairobi's municipal government has provided infrastructure and other services, such as an open-air market to house 8,000 informal food vendors in the city centre in return for a small tax (David et al., n.d.). While the existing policy is not directly targeting urban food security, the initiative supports sustainable access to food within the informal economy.

A sustainable informal food economy in Kenyan cities should also be fostered by addressing non-food issues, including spatial inequality and risk management. Crises, such as drought or political violence, disproportionately affect the poor, who make day-to-day purchases and do not have the financial capacity to stockpile money or food as a buffer. This is a particular concern for the 54.8 percent of Kenyans who live in informal settlements and already lack money to buy adequate food (UN-Habitat 2015; Olack et al. 2011). Slums dwellers are required to travel longer distances to get to the new open-air market and cannot afford to pay public transportation fees. Proper city planning and infrastructure for the urban poor, who rely on food access from the informal economy, can aid access to healthy food. Excluding the urban poor as a critical group of stakeholders exacerbates vulnerability and allows hazards to override other improvements of food security.

## Chennai, India: The Role of the Government in Food Access and Distribution

Indian cities are extremely diverse in terms of food consumption, food sources and food insecurity. This section focuses on the city-scale issues in Chennai, India. Chennai, located in the southern province of Tamil Nadu, has a population of 4.7 million, accounting for 13.5 percent of Tamil Nadu's urban total (Government of India 2011). It is the fourth-largest metropolitan agglomeration in India and one of the fastest-growing metropolitan areas. Between 2001 and 2011, Chennai grew by approximately 7.7 percent due to internal migration and as a result, slum dwellers now comprise 26 percent of the population (Harriss-White et al. 2013). Unemployment, poor infrastructure, inadequate city planning and abject poverty constantly plague this largely urban slum population with far-reaching implications for health, sanitation and food security. The India State Hunger Index designates the province of Tamil Nadu as having an alarming rate of hunger (Menon, Deolalikar and Bhaskor 2009). This alarming level of hunger is a consequence of inadequate access to food sources, limited food availability and poor nutritional well-being.<sup>6</sup>

Supermarkets have become more prominent in Chennai in the last few years. However, supermarkets do not seem to mitigate food insecurity in Chennai, as the poor generally cannot afford to frequent supermarkets. Upper- and middle-income individuals, who have the financial means to choose what foods they want to access, tend to be the consumers of supermarkets in this city. One study found that the average income of shoppers at Chennai supermarkets is 340,000 rupees (US\$7,649), which is considerably higher than the Tamil Nadu provincial average income of 40,000 to 50,000 rupees (US\$900 to \$1,125)<sup>7</sup> (Kinnaman and Takeuchi 2014). In addition, supermarkets are increasingly seen as a form of entertainment since the affluent have the time and money to browse and purchase luxuries. Supermarkets do not appeal to the poor who lack the time and the money to afford the amenities of the supermarket.

As a result, the large proportion of urban slum dwellers living below the poverty line in Chennai are forced to rely on the government Public Distribution System (PDS) as their primary source of food. Since 2011, the PDS has offered rice free of charge and subsidized sugar and wheat for those who qualify. As one of the largest programs of its kind in the world, the PDS has been described as a policy instrument protecting the calorie supply of people below poverty lines, thereby improving food

access and overall health (Rajagopalan 2010; Mahendran and Indrakant 2014). This is especially important since there are pockets of extreme undernutrition in the area and the prevalence of calorie undernourishment is over 25 percent (Kattumuri 2011). Evidence has shown that the PDS has contributed to improving food security and, as a result, it has been expanded with the 2013 National Food Security Act, to ensure that adequate quantities of quality foods is provided to the urban poor at an affordable price (*The Gazette of India* 2013). This new program will provide food to more than two thirds of the Indian population thereby addressing the alarming rates of hunger (Menon, Deolalikar and Bhaskor 2009). While supermarkets have a role to play on the provision of goods to those who can afford them, many in the urban slums cannot afford the prices offered by these establishments and instead have to rely on the government for food. With the government offering a more comprehensive provision process, it is likely that this will meet some of the goals of the SDG.

## Policy Recommendations

Accessing food is a constant struggle for the urban poor of the Global South. As governments revamp their state policies in anticipation of the SDGs, they should recognize the unique challenges posed by urban food insecurity. In order to meet SDG 2 to end hunger, achieve food security, and improve nutrition by 2030, national governments of the Global South and the international community must take a best-practice approach toward addressing these concerns. The case studies discussed the context-specific issues that arise in food procurement in developing countries. The common concerns raised in these case studies must be addressed within national policies.

**Governments should support the role of the informal economy in achieving food security.** Proposed government regulation should not hinder the ability of the informal economy to function as an adequate food provider. The local context will dictate best practices for achieving food security.

**Governments should integrate non-food issues related to food security, such as spatial planning, risk management, infrastructure and transportation costs, into food security planning.** Increasing the number of food markets accessible from slum areas can cut down on transportation costs and make food acquisition more convenient for poor consumers. Building additional infrastructure within the informal economy can strengthen its sustainability and help overcome the barriers of the urban poor.

**Governments and supermarkets should collaborate to create policies that cater to the poor and improve their ability to choose healthy food options.** Policies can include corporate tax writeoffs or favourable regulation for compliers. "Discount

6 "Alarming rates of hunger" is a classification in the International Food Policy Research Institute used to categorize levels of hunger greater than serious.

7 Based on the currency exchange for April 2011, when the survey was conducted.

cards” for households below a certain income can be used to qualify for a discount on healthy food options in supermarkets, thereby creating preferential pricing structures for the poor. Also, providing fruits and vegetables near their expiration date at a reduced cost, rather than simply pulling them from shelves, could improve healthy food access.

**To improve nutrition, governments should track food consumption patterns and develop strategies to support improved food options for the urban poor.** Governments should use household surveys and national statistical data to engage in continuous reform of food-related programs and policies.

## Conclusion

As governments develop policies to achieve SDG 2 in rapidly urbanizing countries, the need to pay particular attention to the role of the informal economy, non-food issues, pro-poor pricing structures and healthy food consumption patterns will increase. The case studies in Mexico, China, Kenya and India have highlighted important food security challenges facing urban dwellers and how to overcome them by targeting existing food systems such as supermarkets, the informal economy and PDSs. While local context will dictate the best practice approach, this brief provides general recommendations for national governments in the Global South to promote sustainable urban food security.

## Acknowledgements

The authors would like to thank Jonathan Crush, Mary Caesar, Abel Chikanda and Liam Riley for their invaluable contribution to this project. We also would like to thank distinguished panellists, Michael Bell, Nigel Fischer and Diego Osorio for their insightful commentary during the CIGI Fellowship Symposium.

## Works Cited

- Bai, J., T. Wahl and J. McCluskey. 2006. *Consumer Choice of Retail Food Store Formats in Qingdao, China*. Long Beach.
- Biles, J. 2006. “Globalization of Food Retailing and the Consequences of Wal-Martization in Mexico.” *Academia* 24,:343–55.
- Castellanos, J. 2014. “2014 Mexico Food Processing Report.” In *Global Agricultural Information Network Report*, 1-19. [http://gain.fas.usda.gov/Recent GAIN Publications/ Food Processing Ingredients\\_Mexico City ATO\\_Mexico\\_12-9-2014.pdf](http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Food%20Processing%20Ingredients_Mexico%20City%20ATO_Mexico_12-9-2014.pdf).
- Clark, S., C. Hawkes, S. Murphy, K. A. Hansen-Kuhn and D. Wallinga. 2012. “Exporting Obesity: US Farm and Trade Policy and the Transformation of the Mexican Consumer Food Environment.” *International Journal of Occupational and Environmental Health* 18 (1): 53–65.
- David, Susanne, Oliver Ulrich, Serge Zelezeck and Nachi Majoe. n.d. *Managing informality: Local government practices and approaches towards the informal economy*. Pretoria, South Africa: South African Local Economic Development Network, South African Local Government Association & Local Economic Development Network of Africa.
- FAO. 1996. “World Food Summit Plan of Action.”
- González Dávila, O. 2010. “Food Security and Poverty in Mexico: The Impact of Higher Global Food Prices.” *Food Security* 2: 383–93.
- Government of India. 2011. Census. <http://censusindia.gov.in/2011-common/censusdataonline.html>.
- Harriss-White, B., W. Olsen, P. Vera-Sanso and V. Suresh. 2013. “Multiple shocks and slum household economies in South India.” *Economy and Society* 42 (3): 398–429. August.
- Hu, D., T. Reardon, S. Rozelle, P. Timmer and H. Wang. 2004. “The Emergence of Supermarkets with Chinese Characteristics: Challenges and Opportunities for China’s Agricultural Development.” *Development Policy Review* 22 (5): 557–86. doi:10.1111/j.1467-7679.2004.00265.x.
- Jiménez-Cruz, A. and M. Bacardi-Gascon. 2004. “The Fattening Burden of Type 2 Diabetes on Mexicans: Projections from Early Growth to Adulthood.” *Diabetes Care*.
- Kattumuri, R. 2011. “Food Security and the Targeted PDS in India.” ARC working Paper 38 LSE.

- Kinnaman, T. and K. Takeuchi. 2014. *Handbook on Waste Management*. Edward Elgar Publishing Ltd.
- Kimani, S. W., E. K. Kagira, L. Kendi, C. M. Wawire, and U. J. Fourier. 2012. "Shoppers perception of retail service quality: Supermarkets versus small convenience shops (dukas) in Kenya." *Journal of Management and Strategy* 3 (1): 55–66. doi:10.5430/jms.v3n1p55.
- Li, T. and Y. Qian. 2010. "Mainlanders Visit HK for Cheap Groceries." *China Daily*, November 10.
- Mahendran, A. and S. Indrakant. 2014. "Public Distribution System in Tamil Nadu, India: Rice Supply Scheme of Prosperous, Problems and Policy." *International Journal of Academic Research in Public Policy and Governance* 1 (1): 15–29.
- Matuschke, I. 2009. "Rapid urbanization and food security: Using food density maps to identify future food security hotspots Rapid urbanization and food security." Paper for the International Association of Agricultural Economists Conference, Beijing, China, August 16–22, 2009.
- Menon, P., A. Deolalikar and A. Bhaskor. 2009. "India State Hunger Index, Comparison of Hunger across states." *International Food Policy Research Institute*: 5–29.
- Ministry of Planning and National Development. 2003. "Kenya: Economic recovery strategy for wealth and employment creation 2003–2007." Government of Kenya.
- Muyanga, M., T. S. Jayne, G. Argwings-Kodhek and J. Ariga. n.d. "Staple food consumption patterns in urban Kenya: Trends and policy implications." Nairobi: Tegemeo Institute of Agricultural Policy and Development, Egerton University.
- Neven, D., T. Reardon, J. Chege and H. Wang. 2006. "Supermarkets and consumers in Africa: The case of Nairobi, Kenya." *Journal of International Food & Agribusiness Marketing* 18 (1/2): 103–23. doi:10.1300/J047v18n01\_06.
- Olack, B., H. Burke, L. Cosmas, S. Bamrah, K. Dooling, D. R. Feikin, L. E. Talley and R. F. Breiman. 2011. "Nutritional status of under-five children living in an informal urban settlement in Nairobi, Kenya." *Journal of health, population and nutrition* 29 (4): 357–63.
- Ouma, D., D. T. Mwangi and M. P. Oduk. 2013. "Modeling agility in Kenyan supermarkets chain expansion." *International Journal of Business and Commerce* 2 (8): 21–36.
- Rajagopal, Victor. 2010. "Street Markets Influencing Urban Consumer Behavior in Mexico." *Latin American Business Review* 11: 77–110.
- Rajagopalan, S. 2010. "The Role of Targeted PDS and Food Stamps in promoting better access to food in Poor households." M. S. Swaminathan Research Foundation Report, Chennai.
- Rockefeller Foundation. 2013. "The Rockefeller Foundation's informal city dialogues: Nairobi, Kenya." <http://nextcity.org/informalcity/city/nairobi>.
- The Economist*. 2014. "Poverty in Mexico: A Few More Pesos, A Lot More Stress." *The Economist*, January 4.
- . 2015. Explore Countries. <http://foodsecurityindex.eiu.com/Country>.
- The Gazette of India*. 2013. The National Food Security Act (2013). India. <http://indiacode.nic.in/acts-in-pdf/202013.pdf>.
- Tschirley, D., K. M. Muendo and M. T. Weber. 2004. "Improving Kenya's domestic horticultural production and marketing system: Current competitiveness, forces of change, and challenges for the future." Tegemeo Institute Of Agricultural Policy and Development, Egerton University Working Paper 8B.
- Tschirley, D. et al. 2010. "Modernizing Africa's fresh produce supply chains without rapid supermarket takeover: Towards a definition of research and investment priorities." Michigan State University International Development Working Paper 106.
- UNICEF. n.d. Country Statistics. [www.unicef.org/statistics/index\\_countrystats.html](http://www.unicef.org/statistics/index_countrystats.html).
- . 2013. "Kenya: Statistics." [www.unicef.org/infobycountry/kenya\\_statistics.html](http://www.unicef.org/infobycountry/kenya_statistics.html).
- UN DESA. 2014a. *World urbanization prospects: The 2014 revisions*. New York: United Nations. <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf>.
- . 2014b. Open working group proposal for Sustainable Development Goals. New York: United Nations. <https://sustainabledevelopment.un.org/sdgsproposal.html>.
- UN-Habitat. 2015. Explore Data. [http://urbandata.unhabitat.org/explore-data/?indicators=slum\\_proportion\\_living\\_urban,population,urban\\_population\\_cities,hiv\\_prevalence\\_15\\_to\\_49\\_year](http://urbandata.unhabitat.org/explore-data/?indicators=slum_proportion_living_urban,population,urban_population_cities,hiv_prevalence_15_to_49_year).
- Wang, R. and L. Shi. 2012. "Access to food outlets and children's nutritional intake in urban China: a difference-in-difference analysis." *Italian Journal of Pediatrics* 38 (1) : 30. doi:10.1186/1824-7288-38-30.

Wiggins, S., S. Keats, E. Han, S. Shimokawa, J. Alberto, V. Hernandez and R. M. Claro. 2015. "The Rising Cost of a Healthy Diet: Changing Relative Prices of Foods in High-Income and Emerging Economies." Overseas Development Institute Report. May.

World Bank. 2014. Urban population (percent of total). <http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>.

WHO. 2014. "Obesity (body mass index  $\geq$  30) (age-standardized estimate): Data by country." <http://apps.who.int/gho/data/node.main.A900A?lang=en>.

Zhang, Q. F. and Z. Pan. 2013. "The Transformation of Urban Vegetable Retail in China: Wet Markets, Supermarkets and Informal Markets in Shanghai." *Journal of Contemporary Asia* 43 (3): 497–518. doi:10.1080/00472336.2013.782224.

## About the Authors

**David Alejandro Celis Parra** is an M.A. candidate in International Public Policy at the BSIA and a CIGI Graduate Fellow with experience in migration policy and professional interests in international governance, land rights, insurance and international development.

**Krista Dinsmore** is an M.A. candidate in Global Governance at the BSIA, conducting research on water management policies in the Global South. She is a CIGI Graduate Fellow and will be undertaking an internship at the Centre for Science and Environment in New Delhi, India, this fall.

**Nicole Fassina** is an M.A. candidate in Political Science at Laurier University. She is a CIGI Graduate Fellow with professional experience in sustainable development in East Africa, international governance and disaster management.

**Charlene Keizer** is an M.A. candidate in International Public Policy at the BSIA. She is a CIGI Graduate Fellow with experience in law, migration and cross-border immigration policies.

## About CIGI

The Centre for International Governance Innovation is an independent, non-partisan think tank on international governance. Led by experienced practitioners and distinguished academics, CIGI supports research, forms networks, advances policy debate and generates ideas for multilateral governance improvements. Conducting an active agenda of research, events and publications, CIGI's interdisciplinary work includes collaboration with policy, business and academic communities around the world.

CIGI's current research programs focus on three themes: the global economy; global security & politics; and international law.

CIGI was founded in 2001 by Jim Balsillie, then co-CEO of Research In Motion (BlackBerry), and collaborates with and gratefully acknowledges support from a number of strategic partners, in particular the Government of Canada and the Government of Ontario.

Le CIGI a été fondé en 2001 par Jim Balsillie, qui était alors co-chef de la direction de Research In Motion (BlackBerry). Il collabore avec de nombreux partenaires stratégiques et exprime sa reconnaissance du soutien reçu de ceux-ci, notamment de l'appui reçu du gouvernement du Canada et de celui du gouvernement de l'Ontario.

For more information, please visit [www.cigionline.org](http://www.cigionline.org).

## CIGI Masthead

### Executive

President	Rohinton P. Medhora
Director of the International Law Research Program	Oonagh Fitzgerald
Director of the Global Security & Politics Program	Fen Osler Hampson
Director of Human Resources	Susan Hirst
Director of the Global Economy Program	Domenico Lombardi
Vice President of Finance	Mark Menard
Chief of Staff and General Counsel	Aaron Shull

### Publications

Managing Editor, Publications	Carol Bonnett
Publications Editor	Jennifer Goyder
Publications Editor	Vivian Moser
Publications Editor	Patricia Holmes
Publications Editor	Nicole Langlois
Graphic Designer	Melodie Wakefield
Graphic Designer	Sara Moore

### Communications

Communications Manager	Tammy Bender tbender@cigionline.org (1 519 885 2444 x 7356)
------------------------	---

Copyright © 2015 by the Centre for International Governance Innovation

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Centre for International Governance Innovation or its Board of Directors.

This work is licensed under a Creative Commons Attribution-Non-commercial — No Derivatives Licence. To view this licence, visit ([www.creativecommons.org/licenses/by-nc-nd/3.0/](http://www.creativecommons.org/licenses/by-nc-nd/3.0/)). For re-use or distribution, please include this copyright notice.



67 Erb Street West  
Waterloo, Ontario N2L 6C2, Canada  
tel +1 519 885 2444 fax +1 519 885 5450  
[www.cigionline.org](http://www.cigionline.org)

