



# Hunger in an Agricultural City: Exploring Vulnerability in Dschang, Cameroon

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## INTRODUCTION

This chapter provides a case study of household food security in Dschang, Cameroon. Cameroon faces a dangerous combination of rapid urbanization, an inadequate system of urban governance, and a lack of information about urban socio-economic trends that threaten the sustainable development of its cities. The urban research available shows that many urban residents struggle to make ends meet: unemployment is common, food prices are high relative to incomes, and, with population growth, it is increasingly difficult to survive by producing one's own food (Fon, 2011; Krishna Bahadur et al., 2018; Legwegoh & Fraser, 2017; Sneyd, 2013).

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Cameroon's population is currently 56% urban and projected to be 73% urban by 2050 (UN-DESA, 2018). The rapid expansion of the urban population presents an urgent need for investments and policies that will provide a framework for sustainable and inclusive growth, with food security a central pillar of this vision. With over half the urban population (55%) living in secondary cities with fewer than 500,000 people, the challenges facing secondary cities such as Dschang will have to be addressed.

Dschang is a sub-regional hub with a national university and a population of around 200,000. A household food security survey conducted in 2017 found high rates of food insecurity, which is ironic because Dschang has been known as an "agricultural city" that boasts a strong tradition of blending urban amenities with agricultural productivity and bountiful forests that provide wild foods (ADEID, 2011; UCCC, 2021). The case of Dschang, in keeping with many African secondary cities (Battersby & Watson, 2019; Mackay, 2019), informs theoretical debates about informal urban food systems because its entire food system epitomizes what is usually classified as "informal." Periodic open-air markets are the main source of food purchases by far, and they are important sources for households across the social strata. Most households produce some of their own food and few buy food at supermarkets.

Comparing the anecdotal evidence of Dschang in the past, including from the personal recollections of the first author and memories of residents, with survey findings, suggests a decline in the effectiveness of traditional informal food sources and local agricultural production to meet the food security needs of residents. Following a description of Dschang and a review of the survey findings, we turn to three political economic factors to explain the high rates of household food insecurity: the political organization of local governance in Cameroon; the anglo-phone crisis and the integration of internally displaced persons (IDPs) in Dschang households; and the "formal" food system that extracts food from Dschang to feed petrol-cash-rich cities in the region. These factors serve to illustrate that vulnerability to food insecurity in Dschang is the outcome of complex causal factors. Drawing these connections through a case study approach reveals part of a broader set of structural issues that need to be addressed across sub-Saharan Africa.

## DSCHANG PROFILE

Dschang is situated in Cameroon's Western Highlands, which are characterized by their moderate climate, uneven topography, and rich vegetation. The city centre, which occupies the small street grid built a century ago, is along a regional highway that leads to Douala in one direction and Bafoussam in the other. Within a kilometre of the central roundabout are the bus depot, the two central markets, several shops and hotels, and a large cathedral. Further along the road toward Bafoussam are the city hall, hospital, the Université de Dschang campus, and the dam and reservoir built by the German administration more than a century ago. Surrounding this core area, in all directions, are burgeoning informal developments such as Fouréké and Foto, where there is an assortment of modern houses, multi-story apartment buildings, open fields, grass-thatched buildings, and traditional chieftaincy courts. Dschang includes a diverse built environment made up of an urban area with 20 neighbourhoods and a rural area with five groups and 96 villages (ADEID, 2011).

Dschang's written historical record begins with a visit in 1895 by a German government representative called Eugen Zintgraff (UCCC, 2021). It became an administrative and civil city in 1903 and, after World War I, when Cameroon was split between the British and the French, came under French control. Dschang became the capital of the Bamiléké region in 1920, but at independence in 1960 was replaced as regional capital by Bafoussam. The administrative census of 1956 listed Dschang as having a population of 3,000. While under colonial rule, Dschang played an important role in the provision of commercial, educational, and administrative facilities to the adjacent rural areas of Fongo-Ndeng, Fotetsa, Fossong-Wentcheng, and Fontem. Dschang is now the administrative centre of the Menoua Division in the West Region. The third General Census of Population and Housing in 2005 (the most up-to-date source of local population figures) lists the Dschang municipality's total population at 120,207 (Government of Cameroon, 2005). Extrapolating based on the rate of increase of Cameroon's urban population used in the World Bank (2020) calculations, the 2020 population is about 200,000 and by 2040 the population is projected to be close to 400,000.

Dschang has a particularly dynamic demography, as its growth is mainly due to the presence of the Université de Dschang, which was established in 1994 and enrolls thousands of new undergraduate and graduate

students annually. The Université de Dschang is part of the national system of tertiary education and, as such, many civil servants are posted to Dschang from other parts of the country. This system of public sector employment contributes to a highly mobile and nationally connected population (Legwegoh et al., 2020). While the university has helped to diversify Dschang's economy, agriculture continues to be the mainstay for most households and businesses (UCCC, 2021). The geography is "dominated by low plateaus, highly dissected by small valleys which are sometimes marshy" (Temgoua et al., 2012). The topography of alternating hills and valleys means that there are many ecological zones of different altitudes within the municipality, and this provides an environment that can produce an abundance of diverse foods. The climate is also favourable for agriculture, with one dry season (mid-November to mid-March) and a much longer rainy season (mid-March to mid-November). Most of the soil is brown earth derived from volcanic basalt rock, which is beneficial for agriculture (ADEID, 2011). This soft soil and the rugged terrain create physical constraints and an elevated risk of flooding and landslides. These risks pose limits to scaled-up agricultural development and building urban and rural infrastructure, but they are ideally suited to small-scale production in valleys, terraced slopes, and diversified farms.

## FINDINGS FROM THE HOUSEHOLD FOOD SECURITY SURVEY

### *Methodology*

Dschang was selected as one of three secondary city case studies for the Food, Urbanization, Environment and Livelihoods project (FUEL) (in addition to Mzuzu, Malawi, and Oshakati-Ongwediva-Ondangwa, Namibia). The exploration of Dschang was an extension of the authors' previous work in Southern Africa (Legwegoh & Riley, 2014; Riley & Legwegoh, 2014). It marked the Central African introduction of the AFSUN approach to measuring urban food security in Africa, and it therefore provides household food security metrics comparable to surveys in other FUEL and African Food Security Urban Network (AFSUN) studies (Crush & Frayne, 2010; Legwegoh et al., 2020; Nickanor et al., 2019; Riley et al., 2018). Part of the interest in Dschang was due to its agricultural character, its rapid growth since the university opened in the 1990s, and its remote location relative to other secondary cities in

the area such as Bafoussam and Bamenda. The anglophone crisis, which escalated after the FUEL project was initiated, also made Dschang an interesting case study because its immediate service area straddles the anglophone/francophone divide.

The data presented in this chapter was gathered through a door-to-door survey of 964 households conducted in December 2017 across the urban, peri-urban, and rural areas within the municipal boundaries of Dschang (Legwegoh et al., 2020). The survey instrument covered experiences of food insecurity using measurement tools developed by the Food and Nutrition Technical Assistance project (FANTA) (Coates et al., 2007; Swindale & Bilinsky, 2006); access to basic goods and services; food sources; and livelihood-sustaining activities. The survey included questions on household members (defined as people eating from the same pot and sleeping in the same dwelling for at least six months of the year on average). Researchers administered the survey in French, the predominant language in Dschang, and in Yemba, the most common mother tongue in the area.

The average household size was 4.5 people. About one in four (27.6%) households had one or two members. The population is very young: one-quarter (25.1%) of all household members are under age 10 and nearly three in four (70.3%) are under age 30. Nearly three-quarters (72.7%) of household members were born in Dschang, and most of the population born outside of Dschang was born in another urban area in Cameroon (23.2%). Only four percent were born in a rural area of Cameroon, and 0.2% were born outside of Cameroon.

### *Household Food Security*

Household food insecurity was widespread in Dschang. The Household Food Insecurity Access Scale (HFIAS) average score in Dschang was 8.0 and the median was 7. The distribution of scores reflected a highly unequal city where 28% of households had scores above 12, meaning they were highly food insecure, and one-third of households had very low scores of 3 or less and thus were rarely faced with food insecurity. The overall HFIAS score does not differentiate the severity of different kinds of experiences indicative of food insecurity, in effect giving equal weight to experiences such as going a whole day and night without eating anything, and worrying about not having food. Taking into account the different levels of severity of the components of the HFIAS series of

questions, the Household Food Insecurity Access Prevalence (HFIAP) indicator provides a complementary interpretation of the data (Coates et al., 2007). According to the HFIAP, the largest share of Dschang households belong to the category of severely food insecure (66.9%), followed by food secure (18.4%), moderately food insecure (10.8%), and mildly food insecure (3.9%). The HFIAP results highlight the fact that many households that do not frequently experience food security nonetheless have members who sometimes experience extreme forms of deprivation.

The second series of questions used to assess household food security in Dschang was the Household Dietary Diversity Score (HDDS) (Swindale & Bilinsky, 2006). Households indicated whether any of their members consumed foods in the previous 24 hours from 12 food categories: (1) grains; (2) roots/tubers; (3) fruit; (4) vegetables; (5) meat and meat products; (6) eggs; (7) fish and shellfish; (8) nuts and legumes; (9) milk and dairy products; (10) foods made from oil and fat; (11) sugar and sweets; and (12) other foods (including spices, condiments and drinks). The HDDS is the sum of the food categories consumed by households, with higher scores representing more diverse diets and suggesting higher food security. The average score in Dschang was 5.1, with a median of 6. The minimum was 0 (1.2% of households had consumed no food in the 12 food categories over the last 24 hours) and the maximum was 12 (0.6% of households had consumed foods from all 12 food groups in the previous 24 hours). Most households had consumed three to eight food groups.

The HDDS provides a window into the nutritional value of the foods widely consumed by Dschang households. Higher household dietary diversity does not necessarily mean better nutrition if the foods eaten are less nutritious or are related to health problems, as is the case with sugar, which has been linked to obesity and diabetes (Legwegoh & Hovorka, 2016). Most households in Dschang had consumed foods made with oil, fat, or butter (81%), fish or shellfish (61%), and grains (58%). Milk and dairy products (22%), eggs (19%), and meat and poultry (18%) were the least widely consumed. About 42% of households had consumed sugar/honey. The high frequency reported for oil, fat, or butter could indicate a public health problem; however, the typical meal compositions for people in Dschang commonly use local oils such as palm for cooking. Sugar/honey is consumed in tea or coffee and with other pastries, which

are customs originating with Cameroon's dual colonial heritage of French and English.

### *Urban Food System*

A view of the food system in Dschang emerged from a series of questions about where and by what means households accessed food (Legwegoh et al., 2020). Households in Dschang overwhelmingly rely on periodic open-air markets to purchase their food. B Market in the city centre is open every day, but is busiest on "market days" (every eighth day is a Big Market Day, and the middle day between Big Market Days is a Small Market Day). C Market (Tsimfem) is vacant except on market days, when it becomes a vibrant centre of commerce (ADEID, 2011). Nearly all households (91%) buy food at open markets and three in every five households (60%) do so on a weekly basis. About one in four households reported that open markets were their sole food source. The sources of the top-10 foods purchased in the previous month further illustrate the dominance of open markets: most households usually buy eight of the 10 most widely purchased foods at markets, including a range of fresh foods (fresh/cooked vegetables 64%, eggs 62%, and fresh fruits 62%); groceries (cooking oil 80%, sugar 55%); and dry foods (rice 76%, dried fish 75%, pasta 69%). White bread is usually purchased at small shops (by 69% of households) and meat at a butchery (by 54%).

Urban and peri-urban agriculture is equal in importance to open-air markets. Only 24% of the surveyed households do not produce any of the food they consume. A similar proportion produce food for the household in both rural and urban areas (23%), 36% produce food only in urban areas, and 18% produce food only in rural areas. Two in every five households that produce food exclusively or partially in rural areas do so for their own consumption and almost three-quarters of these households own the land on which they produce food. Over three-quarters of those involved in urban agriculture cultivated food on their own housing plots. About one in every five produced food within their neighborhood but outside their residential property (either on unbuilt land or on rented land near their homes). The practice of growing food on balconies or terraces, on other urban land and on riverbeds, is less common. Among non-producing households, the most common reason for not producing food was that they have no land to cultivate. Almost half the households keep livestock in the city. Of these, 88% raise chickens, followed by pigs

(43%). Other livestock included ducks, rabbits, goats, sheep, guinea pigs, geese, and turkeys. More than half the households that do not keep livestock said they do not have the land to do so, making this the most important barrier to urban livestock rearing.

About half of households in Dschang received food transfers, making this socially and culturally embedded food source a vital part of the food system. More than three-quarters (77%) of transfer-receiving households receive them from a rural source and 31% from an urban source. Relatives were far more likely to be the source of food transfers than friends: 96% of transfer-receiving households received transfers from relatives and nine percent from friends. The most common sources of transfers are rural relatives (64% of transfer-receiving households), followed by urban relatives (29%). Very few households received food from rural or urban friends. Tubers and plantains were the most common items, received by 61% and 60% of beneficiary households, respectively. About half of these households received maize and potatoes. Other important foods transferred included oil, various vegetables, and fish. Many households received several of these foods, with 15% receiving five or more types. The foods most likely to be received from an urban source were fish, rice, beef or *canda* (cow skin), and oil. Those most likely to be received from a rural source were potatoes, maize, tubers, and plantains. The primary difference is that urban-source transfers tend to be *purchased* by the senders while rural-source foods are *cultivated*. Almost all recipients agreed that these food remittances were important or very important to the household, but only a few said they were “essential for our survival.” In a context of price fluctuations in the markets, and the fact that staples such as cassava, cocoyams, plantains, and yams are becoming increasingly expensive, food transfers are likely to become even more important for urban household food security.

Notably absent as main sources of the most popular foods in Dschang are supermarkets and street vendors. The only shop named *supermarché* sells dry groceries, beverages, and other non-food items. Fewer than one in 10 households access food from supermarkets, possibly including international chain retailers in the major cities of Douala and Yaoundé or in smaller supermarkets in nearby Bafoussam (a city of about a million people, 55 kilometers away). The lack of supermarket chains speaks to the importance of the local, informal, and traditional food chains to support the needs of Dschang’s growing population. It also contributes to the literature on food system transition in secondary cities, which



expects a transition from traditional and informal food sources to greater integration in global commodity chains and a more prominent role for supermarkets. The case study of Dschang appears to be similar to Heather Mackay's (2019) examples of two Ugandan secondary cities where supermarkets were only used sporadically and mainly for specific items. Jane Battersby and Vanessa Watson (2019) found that the formal and informal and the local and national scales were more integrated than previously assumed, such that further analysis of the food chains supplying Dschang's informal markets could reveal more complex integration with international commodity markets than first appears. The ostensibly informal food transfers from urban relatives in other cities are one possible pathway.

### *Household Food Production and Food Security*

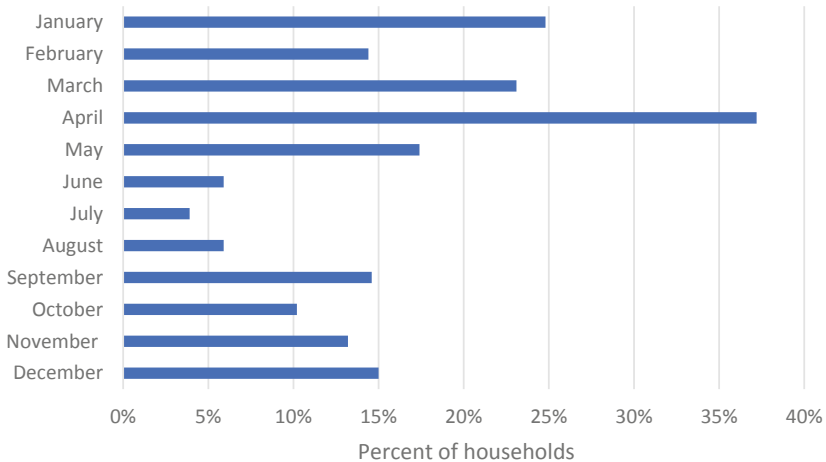
The survey data provides some insight into the role of agricultural activities in reducing household vulnerability to food insecurity. The key limitation is that the cross-sectional data does not reveal any change over time that could demonstrate an impact, but it does reveal some relationships between the two characteristics. Households that produce crops are less food secure on average (mean HFIAS 8.1) than households that do not produce any of their own food (mean HFIAS 7.5). They also have less diverse diets (mean HDDS 4.9 versus 5.8). There are relatively small differences between households that raise livestock and households that do not raise livestock in terms of HFIAS (7.9 and 8.1, respectively). Households that raise livestock have less dietary diversity than households that do not raise livestock (4.8 and 5.4, respectively). While the data does not provide evidence associating urban agriculture with food security, it is likely that producing households would be worse off without the food they produce. The results suggest that, for many households, the food they produce is not sufficient to protect them against hunger and poverty.

The Months of Adequate Household Food Provisioning (MAHFP) evaluation tool captures monthly access to food over the course of the previous year and identifies which months in the year households faced difficulty in accessing food. This tool has been used in similar studies to observe the impact of the agricultural cycle on households' food security over the course of a year (Battersby & Watson, 2019; Crush & Frayne, 2010). The MAHFP score is calculated as the number of months out of 12 that the household had an adequate food supply. The average score for Dschang was 10.6 and the median was 11. The lowest score was 5, and

six percent of households had a score below 9. Almost one-third (32%) had a score of 12.

The impact of the agricultural seasons on food security is evident in the months when the greatest number of households did not have an adequate food supply (Fig. 14.1). In March, April, and May, during the planting season for most staple crops, 23%, 37%, and 17% of households reported inadequate food access. The most widely inaccessible foods were root vegetables and foods made from them. January was another month when a high percentage of households had difficulty accessing food (25%), but for most households experiencing difficulties in January the reason was a lack of cash rather than the agricultural cycle (93%). The most inaccessible food in January was meat (84%). Notably, the HDDS categories of “sugar/honey,” “foods made with oil, fat or butter,” and “other” foods were inaccessible to only a few households, during the agricultural lean season and in January when household cash reserves are low. This suggests that the least nutritious foods are the most likely to be available year-round, perhaps pointing to a nutritional transition trend where the food system makes less nutritious food more easily accessible.

The overall picture that emerges from the data is an urban environment with high rates of food insecurity, which is often characterized by infrequent but severe events at the household scale, such as an absolute



**Fig. 14.1** Monthly pattern of food inaccessibility

lack of food for a short period of time. The three most important sources of food are periodic open-air markets, subsistence agricultural activities, and food transfers from relatives. Our previous work in Southern Africa compared the high rates of food security among poor households in Blantyre, Malawi, relative to poor households in Gaborone, Botswana, against the backdrop of expectations that a wealthier, more “developed” country such as Botswana would have more food-secure cities. Our analysis found that a robust set of sources from commercial and non-commercial sources created a resilient entitlement portfolio that reduced poor urban households’ vulnerability to food insecurity (Legwegoh & Riley, 2014; Riley & Legwegoh, 2014). These conclusions do not appear to resonate in Dschang, where households use diverse means of accessing food and yet most are severely food insecure. The case of Dschang suggests that there are additional factors shaping vulnerability in Dschang, perhaps related to differences in Cameroon’s food system, differences in secondary versus primary cities or differences in how Africa’s urban food systems have changed over a decade. The differences in these case studies are far too complex to arrive at a definitive explanation, but the remaining section of our chapter explores three specific factors that might be limiting the effectiveness of households’ multiple-source food security strategy. The study presented in this volume by Yanick Kamga demonstrates a fourth key factor, climate change, which is not addressed in this chapter.

### POLITICAL ECONOMIC FACTORS OF VULNERABILITY

Daniel Maxwell (1999) conducted a political economic analysis of urban food security in sub-Saharan Africa and found it to be a politically invisible issue. He argued that the problem of food access for urban residents in Accra and Kampala was discursively overshadowed by the politically salient issues of rural food production and urban infrastructure. A recent review found that urban food security continues to be overlooked in much of the global development policy literature, although there is an increasing number of clusters of interest and action (Crush & Riley, 2019). According to Maxwell (1999), urban food insecurity is symptomatic of the political economic changes that resulted from structural adjustment programs in the 1980s and 1990s, specifically the paradoxical reduction of state responsibility for social welfare just as many countries were adopting democratic political institutions and neoliberal approaches

to economic development. The three specific factors explored here—the state’s undermining of local governance capacity in Cameroon; the political crisis caused by the national government’s crackdown on anglophone opposition; and the loss of food from Dschang due to regional market integration—demonstrate the enduring salience of political economy for understanding urban food insecurity.

### *The Political Organization of Local Governance*

Councils constitute local government in Cameroon. They are made up of elected officials who are supposed to manage local development, including improving the living conditions of their inhabitants and driving socio-economic development. However, due to political challenges linked to imbalance in political and financial power held by the central government, councils generally lack the required resources and are not sufficiently empowered to carry out these functions (Bang, 2013; Kofele-Kale, 2011; Takwa et al., 2020; Yombi et al., 2019). As in the case of Dschang, the lack of proper functional infrastructure, even at the city council office, illustrates that councils are inefficient administrative units, which lack a strong economic base to drive development. Given the challenge in or the lack of devolution of revenue from central to local governments, and the lack of political accountability to the local population, one could understand why the daily priorities of residents such as food access do not appear to drive urban leadership.

### *Consequences of the Anglophone Crisis*

Political conflict is an important factor in the loss of food entitlements in general, although its impact in the context of secondary African cities has been less researched. The government crackdown on protests by the anglophone minority in 2016 ignited a crisis in the Northwest and Southwest Regions of Cameroon, which has escalated into a full-fledged conflict and triggered mass displacements, especially in rural areas (UN-OCHA, 2021). Dschang is close to the border between Cameroon’s anglophone and francophone regions and is therefore affected by the civil war and nearby military violence. There were an estimated 679,000 IDPs in Cameroon as of January 2020 (ACAPS, 2020). While the exact number in Dschang is not known, anecdotal evidence during the survey implementation in December 2017 suggested that there were many displaced

people. Most were from the neighbouring Lebialem division, one of the worst affected regions, which shares indigenous cultural similarities with Dschang. There had been longstanding mobility between the two areas prior to the current political instability, and for many communities in Lebialem, Dschang is more accessible than urban centers in their own region.

Many of these people are absorbed by local households, for example when children are sent from conflict areas to attend school in a peaceful area and stay with relatives. The presence of IDPs likely contributed to the high level of household food insecurity in Dschang by stretching the resources of local households hosting guests and through the introduction of vulnerable displaced households. The conflict has also disrupted agricultural production and trade in areas of the Northwest Region that are important to Dschang's local food system, although precise data is not available.

### *Food System Integration as a Food Source for Neighboring Countries*

In an informal interview with a leading city official in 2017, the official stated that the top reason for food insecurity in Dschang is that most of the food produced there is exported to major consumer markets in Cameroon's larger cities and other cities in West and Central Africa. His analysis aligns with the available data about the regional food networks (and the trucks we observed on the highway, spilling over with fresh produce). The Dschang area, like most agricultural regions in Cameroon, has become the breadbasket for most of the Central African region and parts of Nigeria (ADEID, 2011). A combination of oil-rich economies that have lower agricultural productivity, such as Equatorial Guinea, or large populations, such as Nigeria, purchase major quantities of agricultural staples, from tubers to fresh vegetables, that are exported daily. Food price data shows a major difference in the average price from one region to another. For example, between 2010 and 2016 in Libreville, Gabon, a kilogram of cassava was US\$1.13, while in Douala, Cameroon, it was US\$0.29. Between 2010 and 2016, the average price for a kilogram of plantains in Libreville was US\$1.23; in Douala it was US\$0.43 (FAO, 2017; Legwegoh & Fraser, 2017). The COVID-19 crisis, which led to regional border closures and limited mobility in the region, has also had an impact on the extent of food exports from Cameroon. It is

estimated that more than 800,000 tonnes of tomatoes produced annually for markets in Nigeria, Equatorial Guinea, Gabon, Chad, Congo and the Central African Republic had to be dumped in Cameroonian markets, sending prices crashing from between 4,000 FCFA (Central African francs) and 5,000 FCFA during peak harvest season to 1,000 FCFA and 2000 FCFA (Foka-Nkwenti et al., 2020). Local consumers might benefit in the short run from the closed borders, but the structural problem of food security for food-producing regions, in an international market with highly uneven geographies of wealth, will continue to exact a toll on the viability of local food systems and household food security.

## CONCLUSIONS

Further research is needed to understand the direct and indirect impacts of these linkages and to develop a theoretical understanding of secondary city food systems as part of the food production side of the equation within national and international urban hierarchies. The evidence suggests that households in Dschang are facing an increasingly uphill battle to meet their own food needs on a consistent basis. There are bright spots, such as the dietary diversity and the richness of the environment for food production. Nonetheless, contextual factors beyond the control of households and city leaders limit the effectiveness of efforts to build a food-secure city.

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