

Informal Food Markets in Quezon City and Pasay City, Philippines: A Rapid Assessment

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Acronyms

ABS-GCC	Aqua-based Business School with Gender and Climate Change
ADB	Asian Development Bank
AFMA	Agriculture and Fisheries Modernization Act
AMAS	Agriculture Marketing Assistance Service
ATI	Agriculture Training Institute
BARRM	Bangsamoro Administrative Region Mindanao
BAR	Bureau of Agricultural Research
BFAR	Bureau of Fisheries and Aquatic Resources
BGC	Bonifacio Global City
BGY/bgy	Barangay
BPI	Bureau of Plant Industry
CALABARZON	Cavite, Laguna, Batangas, Rizal and Quezon
CAR	Cordillera Administrative Region
CGIAR	Consultative Group on International Agricultural Research
CIP	Centro Internacional de la Papa
COVID	corona virus immune deficiency
DA	Department of Agriculture
DepEd	Department of Education
DILG	Department of Interior and Local Government
DPWH	Department of Public Works and Highways
DOH	Department of Health
DOLE	Department of Labor and Employment
DOST	Department of Science and Technology
DSWD	Department of Social Welfare and Development
DTI	Department of Trade and Industry
EDSA	Epifanio de los Santos Avenue
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistics
FAFH	food away from home
FBS-GCC	Farmer Business School with Gender and Climate Change Perspective
FCA	farmers' cooperative and association
	GFHSGlobal Forum on Human Settlement
	HUC highly urbanized city
IFAD	International Fund for Agriculture and Development
ILO	International Labor Organization
LGU	local governmentuUnit
MBCRPP	Manila Bay Clean-up Rehabilitation and Preservation Program
MIMAROPA	Mindoro, Marinduque, Romblon, Palawan
MM	Metro Manila
NCR	National Capital Region
Pen	Peninsula (as in Zamboanga Peninsula)
PESO	Public Employment Service Office
PhP	Philippine peso
QC	Quezon City
RDE	research, development and extension
TESDA	Technical Education and Skills Development Authority
UAP	Urban Agriculture Program
UN	United Nations
UNDP	United Nations Development Program
UPLB	University of the Philippines Los Banos
UPUA	urban peri-urban agriculture
VBS	Vendor Business School
WB	World Bank
WP2	Work Package 2

Informal Food Markets in Quezon City and Pasay City, Philippines: A Rapid Assessment

Abstract

Cognizant of the centrality of food systems in a rapidly urbanizing world amidst environmental and health risks, the Resilient Cities Initiative will strengthen capacities for research and innovation in the management of urban food systems in Africa, Asia, and Latin America.

As part of this initiative, the CIP-implemented Philippine project aims to improve urban food systems by strengthening enterprise capacities of informal vendors, thereby helping to improve food supply and diets of the urban populace and securing economic opportunities, especially for the urban poor. This initial study reports findings from an assessment of the participation of informal food vendors in the agrifood systems of two Metro Manila pilot cities in order to contribute to the design of capacity development interventions in the next phase.

Findings show that informal food vendors play a significant role in food provisioning, livelihood and income generation across the food chain. They are found to be key links between multiple food production locations and consumers in primary, secondary, and satellite markets, especially benefiting the urban poor. Recognizing these, city governments started policy initiatives to improve the functioning of informal vendors in market spaces, coming up with options that address issues on relocation, regularization, and marketing. At this point, though, it is still largely a work in progress. Evidence suggests a greater likelihood of informal food vendors contributing to resilient cities by strengthening their enterprise skills and giving them access to information, innovation, and support services to improve selling practices, sanitation and hygiene, and make nutrient-sensitive food chain improvements. Based on these, it is proposed that designs for developing the capacity of this sector involve the adaptation of the CIP-developed Farmer Business School into the Vendor Business School, integrating the capacity and learning needs of informal vendors in partnership with city governments and stakeholders.

Introduction

The One CGIAR Initiative on "Resilient Cities through Sustainable Urban and Peri-Urban Agrifood Systems" aims to strengthen evidence and capacities for improving management of urban food systems in Africa, Asia, and Latin America through access to technology, skills, and information to improve diets and livelihoods of a fast-growing global urban populace while reducing environmental footprints. Securing a productive, healthy population in resiliently green urban spaces has become a global priority. The science-based resilient cities initiative has identified five key entry immediate action points: more efficient and safer urban/peri-urban food production, improved urban food markets and supply chains, innovative circular bio-economy, improved urban food environments for healthier urban diets, and support of research and innovative capacity development systems.

In the Philippines, the research focus of the Initiative in the first year is on efficient and safe food production and inclusive profitable informal markets, both with Metro Manila as the focus area. The current report addresses the issue of improving the efficiency of the marketing side of the urban agrifood system. The informal food market, which is a large part of the urban informal economy, is the priority sector being addressed with the end goal of improving urban food systems through capacity development that will strengthen enterprise skills and ensure access to technologies, information, and business support services, thus, improving the food supply and diets of the urban populace while reducing environmental footprints in the urban food system.

The iconic view of vibrant city streets and markets presents scores of ambulant vendors of food, wares, and crafts, along with agricultural produce such as fruits and vegetables—the informal market sector, unregistered and outside the purview of public services and assistance. Yet, it increasingly plays a significant role in the urban economy in terms of livelihood, employment, food provision, and potential contribution to the resiliency and sustainability of cities. The urban food economy is affected by a range of activities from farm to table. Taking the urban informal food sector as a take-off point toward establishing resilient cities requires that it be viewed from an agrifood system perspective. It needs to be understood within the context of urbanization and the related issues of unemployment, poverty, food insecurity, congested settlements and whether cities are able to prepare and recover for future shocks (e.g., economic, social, institutional, environmental). The informal market sector, because of its enormous economic importance in cities of the Global South, needs to be included in public sector planning, policymaking, and program design (ILO 2018, UN 2021, Tefft et al. 2017): that is, informal markets are ubiquitous but exist beyond the purview of public sector policy and action.

Like in most countries in Asia, the rate of urbanization in the Philippines is expected to increase over the next 20 years (UN-Habitat 2022). Metro Manila is classified as 100% urban, even though there are agricultural areas in the fringes. The rest of the country's population is expected to be 60% urban within the decade (PSA 2020). But the economic growth and dynamism of Metro Manila have not been effectively translated into health and well-being. The existing food system in Metro Manila may be described as dysfunctional. People suffer from a "triple burden" of malnutrition. About 33% of children under 5 are stunted, 30% of adults over 20 are overweight or obese, and 20% of children below 5 are suffering from Vitamin A deficiency or "hidden hunger". Moreover, about 67% of households do not meet their calorie requirement (FNRI 2017, 2018). The farmers and fisher folk who feed Metro Manila are suffering, are getting old (average age, 58), and are not being replaced as the young generation

does not want to engage in farming. The reasons are complex. Land and water resources are in short supply with competing uses for housing, farming, and commercial, and industrial purposes. Multiple-use component effluents of the food system (e.g., fertilizers, pesticides, antibiotics, growth promoters, plastic packaging) are causing pollution in rivers; in Laguna de Bay and Manila Bay, the waters have become unsafe for people and aquatic life. Soil quality in the farms continues to deteriorate. Climate change remains a threat. The current food system, which is dependent on imports and long supply chains, contributes significantly to greenhouse gas emissions and is deemed inadequately prepared to adapt to shocks (PSA 2022).

As in other megacities, food is critically high on the development agenda but is being challenged by urbanization trends, growing markets, poverty, food and nutrient insecurity, rising food prices, growing dependence on food imports, and challenges posed by climate change. Such a complexity requires new ways of thinking from various actors who have, in the past, been less engaged in food- and agriculture-related decisions; these actors include urban planners and local and regional authorities. For resilient urban food systems, diverse sources of food supply are needed: from the traditional long rural-urban supply chains across regions to newly emerging urban and peri-urban short supply chains. Markets, as part of the urban agrifood system, offer rich opportunities for resource recovery (waste management) and plowback to urban food production (soil bio-enhancers, bio-pesticides) or energy sourcing (waste to energy) or climate change adaptation (idle areas converted to tree parks or community gardens). Urban food systems have increasingly become an important driver for a number of urban policies such as food security, livelihood generation, social welfare, health and nutrition, education, environment, waste management, and disaster risk reduction (Pasay, Quezon City 2022, DA-ATI 1998; FAO 2020; UN 2021).

To establish a resilient city, this Initiative is a small contribution to the whole gamut of interwoven actions that are required in the short, intermediate, and long term. The informal food sector as the entry point, however, is significant since it is often absent in planning and policymaking and is subject to conflicting views among local and national authorities. Yet, this sector is numerically large and continuously contributes to income and livelihood to a vast population of urban women and youth. Furthermore, it provides convenient, affordable, and tasty food to poorly paid construction workers, public and private workers, and no-kitchen households in slums and congested residential areas. It is also a vital food supply during emergencies and disasters (Alderslade et al. 2006, FAO 2007, Tshofuti 2016, World Bank 2017, Smith et al. 2019).

This pilot initiative is a determined effort to use soft technology on innovative capacity development of informal food vendors by honing their business skills and enhancing their consciousness as to their significant contribution in terms of improved nutrition, social and environmental health and protection, economic growth (through employment, income, marketing ancillaries), and food security, especially for the less endowed majority of urban workers and residents. This is also an exercise of partnership: in implementing a collaborative participatory process of working out interventions in the agrifood system. The learnings are understood as process and inputs for further improvements to be used for adaptation and scaling out later, eventually contributing to a resilient Metro Manila.

Objectives

The study generally aims to understand the participation of the informal market vendors of vegetables and street foods in the market system in Metro Manila in order

to define their role and contribution to the urban food system.

Specifically, with the identified target sector, the study seeks to (1) define the different related subsystems and their characteristics, the types of actors and stakeholders and their relationships, governance issues, challenges and opportunities; (2) identify areas for improvement or learning needs that can be addressed through the capacity development process of a vendor business school; and (3) provide options to improve guidance and conduct of the vendor business school.

Methodology, context, and scope

The project is designed within the agrifood system approach, deemed appropriate considering that this involves a range of dimensions from production, storage, value addition, distribution, and consumption, which will be affected by climate change with increasing frequency and intensity of weather events (FAO 2020, Tacoli et al. 2013, Godschalk 2003). With the project's focus on informal food markets where a chain of relationships from suppliers to consumers is important, a system perspective would be relevant. Related concepts of food security and urbanization put an understanding of the priority focus in context.

Food security is understood as the outcome of effective food systems: the consequence of the interplay among activities, processes, and governance from farm to plate. During the post-1996 World Food Summit, food security has shifted to a broader understanding of four key dimensions: availability, access, utilization, and stability. The emphasis is not only on food supply and production but also on affordability (purchasing power) and access (market links and infrastructure, logistics), nutrient adequacy and food safety (including culture and habit preferences), and ability to bounce back from socioeconomic and environmental shocks (FAO 2013). The Philippines, in its Agriculture and Fisheries Modernization Act (AFMA) (Republic Act 8435) of 1997, has adopted this FAO definition. The ensuing programs and promulgations, however, did not reflect a clear a understanding of the full concept, and thus, the priority swings: food self-sufficiency on staples, especially rice, dominatess the programming agenda and budget allocation.

Metro Manila is a composite of 16 highly urbanized cities and one municipality (Table 1). The project is limited to two pilot sites: the biggest city and smallest city in population and area, Quezon City and Pasay City, respectively. Selection and characterization are detailed in later sections.

The target sectors are the informal food vendors of vegetables and street food (representing animal-based products) in the focus Metro Manila pilot sites.

Table 1. Metro Manila population, area, density, and year incorporated.

City/ municipality	Population	Area (sq km)	Density (no. of people/sq km	Year incorporated
Caloocan	1,661,584	57.90	31,000	1962
Las Pinas	606,293	31.40	19,000	1997
Makati	629,616	27.40	23,000	1995
Malabon	380,522	16.50	24,000	2001
Mandaluyong	425,758	13.50	38,000	1994
Manila*	1,846,513	38.80	43,000	1571
Marikina	456,159	35.10	20,000	1996
Muntinlupa	543,445	48.60	13,000	1995
Navotas	247,543	12.60	22,000	2007
Paranaque	689,992	36.90	15,000	1998
Pasay	440,656	13.90	24,000	1947
Pasig	803,059	32.40	26,000	1995
Pateros	65,227	2.20	37,000	1909 (Not a city)
Quezon City	2,960,048	168.60	18,000	1939
San Juan	126,347	7.50	22,000	2007
Taguig	886,722	46.20	20,000	2004
Valenzuela	714,978	46.50	16,000	1998
Total	**13,484,462**	**636.00**	**21,000**	

Sources: Philippine Statistics Authority. Census of Population and Housing. August 2021; Metro Manila. Wikipedia. https://en.wikipedia.org/wiki/Metro_Manila

Note: Established as metropolitan area on November 7, 1975[; as a region, National Capital Region (NCR) on June 2, 1978.

Vegetables and animal-based street food constitute a significant part of the informal food market. Vegetables and street food vending is a strategic focus because of the number of poor people (especially women and youth) who are involved (PSA 2019, 2022; Bersales and Llarina 2019). This is supported by observations on the streets of Metro Manila.

A rapid food system assessment approach was adopted for the study. Rapid assessment deals with limited or a more focused segment of the food system. Extended assessment covers more food system issues and deals with the specificities of diverse actors and their functions in the food system in detail to identify systemwide interventions (Tefft et al. 2017, Skinner and Harvey 2018, Peter and Batt 2022). The current study uses modular rapid assessment because this focuses on the informal food market sector of the urban economy. The food market chain analytical framework is used on the descriptive characterization of activities, functions, and relationships of informal vendors (vegetables and street food), together with governance in relation to policies, regulations, and initiatives on urban food security and the environment.

The study was carried out in two stages (Annex 1). The first step was the selection of pilot sites from two of the 16 cities of Metro Manila using three criteria: (1) bigger markets serving a bigger population with the likelihood of serving a bigger share of low- to middle-income class households, (2) greater links to/ experience in urban agriculture initiatives with the DA and/or private sector, and (3) more progressive local government leadership and/or "greater likelihood of effective facilitation for the piloting of the capacity-building approach—the vendor business school". A 4-day rapid market appraisal was done in the markets of the selected cities of Pasay and Quezon City. This consisted of initial key informant interviews of market vendors and consultations with market officials, as well as with staff of potential partners such as the Bureau of Plant Industry and Agricultural Training Institute of the Department of Agriculture (ATI-DA) and key officials of selected urban community and school gardens. A report was submitted for this stage.

The second stage consisted of additional market visits and a survey of sample respondents identified during the first stage, which was carried out through (1) key informant interviews of informal vendors (vegetables and street food) and (2) focus group discussions with local government officials and urban school vegetable gardeners (Annex 2). Further review of related literature, secondary data, reports, documents, and materials from local governments, either accessed from the internet or provided by specific agencies, was also done.

Thirty informal food vendors (n=20 for vegetables; n=10 street food) in Quezon City and Pasay City were interviewed to characterize and assess the existing supply market chains—conditions of operations, practices, commodities and food sold, benefits from the business, manner of governance, and challenges and opportunities. As links in the agrifood system, these vendors bring food initially produced in far-flung and nearby farms, some of them processed, to the tables of the urban poor and, hugely, directly to their work places. Importantly, they serve customers who may not be able to conveniently source food from markets and prepare these at home. An increasing number of consumers join the millions of those who have food away from home (FAFH) for various reasons, mainly economic and for convenience. In the process, their learning needs were assessed to identify specific areas for capacity development to enhance operations, enabling greatercontribution to food and nutrition security and to the city's resilience. Earlier, initial information in the context of governance would be further explored in relation to the informal food sector at the chosen sites.

Inasmuch as selection of key informants was purposive due to time constraints, the findings cannot be considered as representative of all markets (12 markets in Pasay City; 34 markets in Quezon City, 41 *talipapa*). However, confidence in results can be enhanced because of the inclusion of the main markets in the survey.

Related Literature

The informal food market sector and food security

Half a century after British anthropologist Keith Hart's research on the "economy of the street" in Accra, Ghana (1973), interest in the informal sector (understood as unregistered economic activity) has increased. There is growing literature on theoretical and empirical issues regarding definitions, distinctions, and measurements giving rise to a "shadow or hidden economy," elaborating on the survival and living strategies of the urban poor in African Latin American, and Asian cities. This underground informal economy was "an overwhelming and enduring reality." For decades, the informal sector has been misunderstood as "lost taxes, unfair competition, public service burden, street trash, and public health concerns," not an important part of the local economy. They are the forgotten lot in urban planning, policies, and programs (Smith et al. 2019, Skinner et al. 2018, FAO 2007, Alderslade et al. 2006). The understanding of the urban informal economy has advanced significantly since then with the International Labour Organization (ILO), the Food and Agriculture Organization (FAO), and other organizations supporting further research and discussions from the primitive descriptive and dualistic definitions of the early 1970s to the mounting evidence of persistent growth of the urban informal sector and its critical role in rapid urbanization performed by its diverse subsectors (e.g., low-paid unregistered labor, ambulant food vendors, street artists, dry good peddlers, garbage pickers).

The term "informal sector" has been widely applied to describe loosely organized and unregistered activities in the rapidly growing cities of the developing world. They are often overlooked and not considered in policy and program formulation. Documented evidence in a growing literature has reversed perceptions of the informal sector as "drivers of wealth, enterprise, and stability in communities." The informal market vendors are integrated into the urban food systems, playing a significant role in food distribution by providing poor urban households with better opportunities to secure food and generating livelihood for the otherwise unemployed women, men, and youth (Scott 2007). The Food Insecurity Experience Scale of the FAO estimates that food insecurity in urban areas, especially in low- income countries, is higher at 50% than in rural areas, 43%. In urban slums, this is estimated to be higher at 90%. There is also increasing literature on the informal food sector in developed economies as well (FAO 2021, 2007; UNHSP 2017; World Bank 2017).

Street food comprises a huge part of the informal food sector. It refers to a "wide range of ready-to-eat food and beverages that are prepared and/or sold by itinerant or stationary vendors on streets and other public places" as defined during the FAO regional workshop on street foods in Jogjakarta, Indonesia in 1986 (Winarno and Allain 1991). Street food has become a global phenomenon in both developing and developed countries (Imatheu 2017, UNHSP 2017). Globally, as well as in the Philippines, FAFH is increasingly the trend in food consumption, especially in cities with food preparation seriously limited by time and transport constraints to work or school. A systematic review of evidence about the contribution of street food to diets estimated that it contributes between 13% and 50% of food for adults in LMICs and from 13% to 40% among children (Steyn et al. 2014). About 40% of 19-59-year-old Filipinos are out-of-home eaters (FNRI 2013), of which a majority are young adult workers in the 19-29 age group (FNRI 2017).

A large share of FAFH is processed food, and a large part is street food, particularly for low-income consumers. Consumption of packaged and processed products is growing, up to five times faster in low-income than in high-income countries, and is higher in larger cities. As a proxy for consumption, per capita retail sales of processed snack food in low- and middle-income countries across the world grew at an annual rate of 7.7% and 9.9% (1998-2012) from 5.5%, respectively, for frozen products and soft drinks (World Bank 2017).

With food being an important part of culture, street food usually reflects local food tradition, existing in endless variety. Vendors' stalls, easily accessible from the street, are usually located outdoors or under a roof with low-cost seating facility. Though individually or family-owned and small, street food operation creates employment by their sheer number in many street corners or clusters. Women and youth play significant roles in the street food enterprise, from buying ingredients to preparing, cooking, and selling the food. Capital is relatively low, the business is easy to operate, work hours are flexible, and mobility is less constrained. All over the world, including the Philippines, customers are no longer simply the urban poor; coming from various socioeconomic levels, they benefit from low-cost tasty food that is readily available and accessible (Osei Menah et al. 2014). The increasing presence and importance of street food across urban spaces is argued by Argenti (2000), attributing the trend to pressures of urbanization. Households have very limited time to prepare food, which tends to change food-buying and -consuming behavior. Also, with urban food budgets higher at least 30% than those in rural areas, this increases the demand for convenient processed meals even among the non-poor.

With vendors often lacking knowledge of food safety, hygiene, or sanitation and sometimes being obliged to work/sell under unsanitary conditions, issues of food quality (including nutrient content), hygiene, and safety in terms of inputs and water quality in processing have increasingly been raised (Gupta et al. 2016). Many food-borne diseases in low-income countries have been traced to food sold in informal markets with perishable food, improper use of additives (e.g., coloring agents, preservatives), food adulteration, contamination, and lack of sanitation in informal food marketing (Skinner et al. 2018, Azanza et al. 2000). But when properly managed, street food can enhance the quality of urban public space as they play important roles in food provision and livelihood in cities, usually benefiting women (Tefft et al. 2017, UNHSP 2017, FAO 2007).

Resilience and urbanization

The informal food market is a significant subsector of the urban agrifood system and the urban economy in general. Following the CGIAR-CIP initiative perspective, interventions for improving the informal food markets need to be contextualized within the process toward resilient cities. The vast and growing body of literature on urban resilience recognizes the interconnectivity of sectors in an urban system and must be integrated, not dealt with sectorally per se. With increasing global urbanization projected at 70% by 2050, cities will be threatened by a myriad of issues: housing, food security, water access, energy, employment, economic uncertainty, and social conflict, among others (Smith et al. 2019, Tacoli et al. 2013). Thus, the perspective of the agrifood system is central in the initiative related to informal food markets. While having a focus, a system's view is maintained. A central issue of urban resilience is food resilience.

The discourse on resilience is evolving, as well as the cadre of expertise across disciplines: from the natural to the social sciences, urban planning and public administration, and ecological and

engineering thrusts, among others. From the traditional view of resilience in the 1960s, which is the "ability to bounce back and recover from shocks," to the more flexible and expanded view that recognizes the power of man's ability to transform the environment, and the system's ability, by human agency, to "adjust in the face of changing conditions," resilience of cities as a target has been understood as complex. Interdisciplinary, system-oriented, and multistakeholder engagement is understood to be critical in advocating resilience-based planning and urban development programs (FAO 2013, 2007; UN-HABITAT 2022). Moving from a comprehensive understanding of shocks and stresses, UNDP defines resilience as a "transformative process of strengthening the capacity of men, women, communities, institutions, and countries to anticipate, prevent, recover from, and transform in the aftermath of shocks, stresses, and change."

Recognizing the interconnectedness of systems within cities and beyond boundaries and looking at the need for holistic perspective and multistakeholder engagement, the push for governance and policy frameworks that can enhance urban resilience is inevitable. Approaches to achieve resilience have branched out; the activities of various actors and stakeholders needed strong leadership and institutional governance. Intertwined with a growing interest in urban planning and good governance, resilience then took the thrust into urban governance thinking and development agenda, thus, coining the term 'urban resilience' (FAO 2013, 2007; UN-HABITAT 2022).

As urbanization is projected to be 60-70% by 2050, poverty and food insecurity are fast becoming urban issues, with other parts of the world already at this level. There is evidence that increased street food selling grew with increasing urban population for convenience in food access and for economic reasons (UNDP 2021, Skinner et al. 2018). The role played by informal food vendors in urban food security and basic nutrition has been increasingly recognized. The most basic need is food, therefore an important case in point is food resilience. Cities, unlike rural areas that are in or near food production points, are more vulnerable to food insecurity (UNDP 2021). Studies in Global South countries found that the daily energy intake from street food in adults ranged from 13 to 50%; in several cities, around half of daily protein intake (Steyn et al. 2014).

The United Nations' Philippine study on the impact of Covid 19 on food chains presented risks on the vegetable and other food chains, both from the demand and supply sides, because of risks in logistics, mobility restrictions, disruptions in production, and lack of information. There have been anecdotal evidences of the increase in street vending of various food sources during the pandemic to improve food access near urban households, along with the rise of mobile stores promoted by government. The UNDP study posits that food value chains be shortened and localized to increase market flexibility as gleaned from the impact of the pandemic on food systems in the Philippines, which also highlighted the role of the informal food markets in food provisioning and focused on the importance of food distribution being closer to consumers for quick and safe access, especially during restricted mobility. Open markets facilitate a smooth distribution of food, reduce food loss, and increase access to fresh and diverse food. The creation of short food value chains is gaining importance in urban planning for food security, the main advocacy of urban and peri-urban agriculture. Urban agriculture found serious implementation during the pandemic, especially in Metro Manila cities. Land use intensification of idle and vacant lands surrounding urban centers can provide food to the urban population; their nearness to food distribution channels lowers logistics, storage, and potentially, prices (Tacoli et al. 2013). Appropriate governance and investments (e.g., in facility, hygiene and

sanitation, health practices, monitoring/ regulation) for the informal sector like street vendors and local eateries that cater to nearby households and population must be strongly stressed (UNDP 2021).

Results and discussion

The pilot cities: a briefer

In the May 2020 Census of Population and Housing, the National Capital Region (NCR) population reached 13,484,462, which accounts for about 12.4% of the country's population. Quezon City constitutes the biggest population, close to 3 million people, whereas Pasay City is close to 441,000 people (Table 1). Population growth rate in the NCR showed a declining rate, 0.97% annually from 2015 to 2020; 1.78% from 2000 to 2010; and 1.58%, from 2010 to 2015 (PSA 2021).

Quezon City and Pasay City were selected as pilot sites based on the three criteria of bigger informal food markets serving low to middle-income population, urban agriculture initiatives, and progressive local leadership. Further, this representative mix of big and small urban pilot sites are manageable enough, given the time constraints. Though Pasay City is relatively smaller than Manila City, for example, the former has the kind of economic dynamism and intensive thinking on markets and urban agriculture that should provide significant experience and lessons. (Refer to Table 3 for the ranking of highly urbanized cities in terms of economic dynamism, government efficiency, infrastructure, and resiliency.)

Quezon City and Pasay City are the oldest 20th century cities in Metro Manila, next to Manila City, which was established in the 16th century when the Spaniards colonized the country. All 16 cities in Metro Manila are highly urbanized, except Pateros, which is still a municipality. A highly urbanized city (HUC) is one with a minimum population of 200,000 inhabitants as certified by the Philippine Statistics Authority and with the latest annual income of at least PhP 50 million(USD 1 million at 1991 constant prices) as certified by the city treasurer. Fifty percent of the HUCs are in Metro Manila (16/33) (Local Government Code of 1991, Republic Act No. 7160). Both Quezon City and Pasay City are part of the major central business district of Metro Manila, which also includes Manila, Makati, Alabang, Bonifacio Global City (BGC), and the Ortigas Center.

Quezon City is the biggest city in population and area, but it is less dense (18,000/sq km) than Pasay City (24,000/sq km), the former growing at a much slower rate, at only 0.17%, compared with the latter's 1.19%. With the pressure of a huge and growing population, the Quezon City local government is at an advantage because of its size and the presence of huge idle or vacant lands, which have been seriously explored in its urban agriculture programs. These lands are also being used in the city's human settlement integrated program. Founded in October 1939 (Commonwealth Act No. 502), Quezon City became a planned model city intended to become the national capital to replace the old, overcrowded, and traffic-congested Manila. It has grown into a thriving metropolis with national government offices constructed; commercial, educational, financial, and residential areas built up; and public and private market infrastructure established.

Quezon City is landlocked and located in the northeastern part of Metro Manila; Pasay City is coastal and shares with the cities of Manila and Paranaque the geographic benefits of Manila Bay for tourism and business in the southwestern part (Figure 1; Table 2).

Quezon City became the capital of the country in October 1949 until 1976. Thereafter, the capital was reverted to Manila City because of its deep historical significance. Quezon City has the largest water reservoir, the La Mesa Dam, with peri-urban commercial vegetable gardens

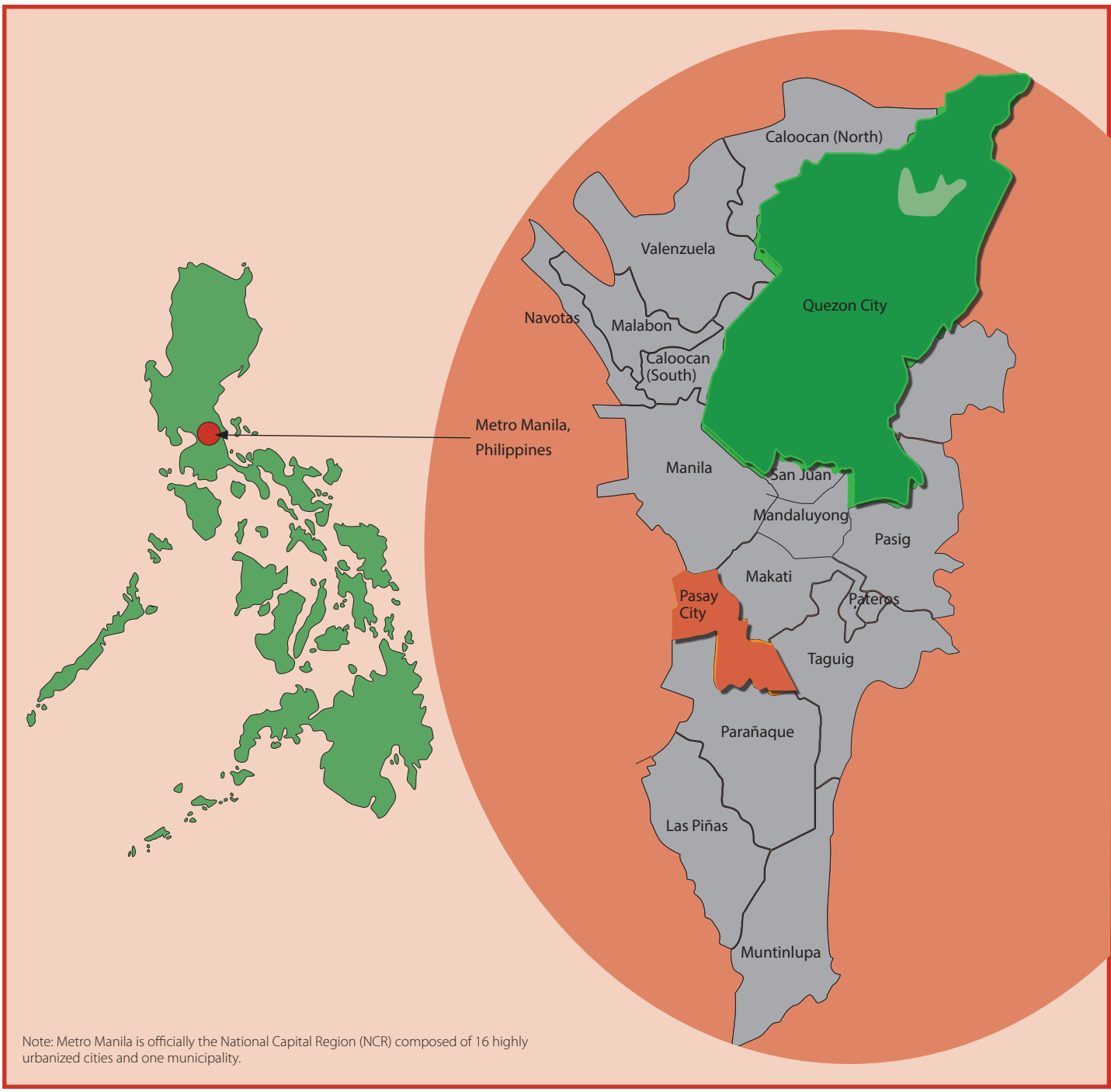


Figure 1. Philippine map showing the location of NCR. Inset: Map of NCR showing the location of Quezon City and Pasay City.

of leafy greens developed around the area. Small- and medium-scale businesses dominate the economy, mostly in wholesale and retail of finished products and in the provision of basic services. This city leads in pursuing innovative development programs that earned it a number of awards in the recent decade. including the Gender and Development (GAD) Local Learning Hubs (LLH, 2019) for its social hygiene and sundown clinics, and the Quezon City Protection Center; Global Human Settlement Model of Community Award (for Bistekville 2, given during the 2018 Annual Session of Global Forum on Human Settlement (GFHS), October 30, 2018, United Nations Conference Center in Bangkok, Thailand; for integrated approach to socialized housing among informal settlers, with disaster risk mitigation and improvement of quality of life); Best Local Disaster Risk Reduction and Management Council (DRRMC), Philippines 2018; Most Competitive City,

Philippines 2018, by the Department of Trade and Industry, at the 6th Regional Annual Competitiveness Summit; 2021 Galing Pook Awardee, GrowQC: *Kasama Ka Sa Pagkain, Kabuhayan at Kalusugan* for its success in sustainable food security program promoting urban gardening to grow safer and nutritious food and provide alternative source of livelihood.

In 2020, Quezon City was featured as a case study on integrated food systems supported by the Norway-based EAT Forum (a global nonprofit start-up dedicated to transforming global food systems) and UNICEF. It was cited for best practices in building food and nutrition resilience. Quezon City was also highly recognized for its green recovery plan, focusing on urban agriculture and livelihood by the Global Covenant of Mayors for Climate and Energy in partnership with the New York Times. In 2021, the Department of Trade and Industry ranked Quezon City as first overall amongHUCs based on the composite criteria of economic dynamism, government efficiency, infrastructure, and resiliency (Table 3).

Recognizing the significance of the informal economy, Quezon City passed in 2016 the Informal Economy Ordinance (QC Ordinance No. SP-2512, S-2016), which defines the informal economy as "all economic activities by workers and economic units that are in law or in practice not covered or insufficiently covered by formal arrangements and does not cover illicit activities" (Section 3a). It also defines informal economy workers as "home-based workers (own account/self-employed), vendors, transportation sectors, non-corporate construction workers and others such as street workers, waste workers and volunteer service workers in private and public" (Section 4). The ordinance aimed to uphold the rights and protect and promote the welfare of the informal workers; provided a framework of

Table 2. Summary characteristics of pilot cities (Quezon City and Pasay City).

Selected summary data	Quezon City	Pasay City
City type	Highly urbanized	Highly urbanized
Geographic location	NCR, landlocked	NCR, coastal (Manila Bay, SCS)
Land area	171.71 km^2 (66.30 sq mi)	13.97 km^2 (5.39 sq mi)
Population (2020)	2,960,048	440,656
Growth rate (2020)	0.17% (declining rate from 12.15%, 1960, the highest)	1.19% (declining from 5.36 in 1939, highest rate)
Density	17,239/km^2 (44,646/sq mi)	1,543/km^2 (81,754/sq mi)
Barangay count	142	201
Est. elevation (m above sea level)	54.8 m(179.6 ft)	11.1 m (36.4 ft)

Source: PhilAtlas; Quezoy City and Pasay City

Table 3. Top 10 ranking* of highly urbanized cities (HUCs), 2021

Overall rank	Overall score	Local government unit	Province	Region	Rank			
					Economic dynamism	Government efficiency	Infrastructure	Resiliency
1st	59.3090	Quezon (MM)	Metro Manila	NCR	2	2	2	3
2nd	58.8263	Manila	Metro Manila	NCR	7	1	1	5
3rd	52.8006	Pasay	Metro Manila	NCR	1	4	4	8
4th	52.7380	Davao	Davao Del Sur	XI (Davao)	3	3	3	6
5th	48.0032	Muntinlupa	Metro Manila	NCR	19	7	5	1
5th	46.7149	Makati	Metro Manila	NCR	4	9	6	7
7th	45.7649	Cagayan De Oro	Misamis Oriental	X (N. Mindanao)	11	12	7	2
8th	42.0990	Valenzuela	Metro Manila	NCR	22	5	9	4
9th	41.4838	Pasig	Metro Manila	NCR	6	15	11	9
10th	40.5160	Cebu	Cebu	VII (C. Visayas)	8	11	8	31

*Rankings are based on the sum of their scores on four pillars: economic dynamism, government efficiency, infrastructure, and resiliency. Cities and municipalities competitive index is an annual ranking of Philippine cities and municipalities developed by the National Competitiveness Council through the Regional Competitiveness Committees with the assistance of the USAID. Department of Trade and Industry.

programs for the informal economy workers; and created the Informal Economy Development Council. The Market Development and Administration Department recorded 54 temporary vending sites in six districts of the city with 2,026 vendors. The Public Employment Service Office, in coordination with the Department of Labor and Employment (DOLE), is the agency in charge of the documentation and monitoring of 779 marginalized/disadvantaged beneficiaries in the provision of emergency, short-term wage employment assistance through the *Tulong Panghanapbuhay sa Ating Disadvantaged* workers (TUPAD for livelihood assistance). With limited employment opportunities, many workers engage in small-scale businesses (full time or part time; seasonal) and are mostly unregistered and therefore, unregulated, unmonitored, and not able to access needed services and assistance. They also do not pay taxes.

Pasay City is strategically located in the southwestern part of Metro Manila (Fig. 1), the main gateway to other cities, the rest of the country, and the world through its airports, expressways, and light rail transit system. Dubbed Travel City, Pasay has a huge part established for cultural destinations, entertainment business, five-star hotels and restaurants, mega malls, and convention centers, located along coastal Roxas Boulevard that has boasted of the renowned Manila sunset for long, a most exciting integrated tourist destination by the bay. The city's history dates back to pre-Hispanic times where governance, human settlements, business, and industry are very much connected to the city of Manila; it shares in the development of the Manila Bay reclamation area (about 1.9 sq mi). Although Pasay is Metro Manila's fourth smallest city, it is more densely populated than Quezon City. In 2021, it ranked first in the economic dynamism category using the city competitive index and third overall in city rankings by the Department of Trade and Industry, following Quezon City and Manila (Table 3).

The increasing economic activities over a small area contributed to problems of overcrowding, unemployment, and poverty, but this is concentrated in less than 4% of barangays where poverty incidence is greater than 30%. In half of Pasay City barangays, poverty incidence is estimated at 10% or less. This shows a significantly improved status, given the reported 41% poverty incidence in 2005, and the recent open unemployment rate of 15.5%. This could imply that official unemployment data partly reflect those engaged in productive economic activities of the informal sector such as informal markets of vegetables, fruits, processed products, snack items, and street food.

There is no hard data available in Pasay City as to the size of the informal sector. However, it reports that at least 57% of businesses are classified under general merchandise and retail, with retailing the major part of thesector. Informal vendors abound in privately owned public markets, in *talipapa* (or satellite markets) in most barangays (Pasay City website), and in strategic locations near schools, hospitals, churches, supermarkets, and construction sites.

The Pasay City government has been running social welfare and development programs in partnership with different government agencies like the Department of Agriculture for the implementation of KADIWA stores (mobile stores of basic commodities), especially during the pandemic. The Department of Trade and Industry offers daily price monitoring in all markets and the Technical Education and Skills Development Authority (TESDA) provides skill-building initiatives where certification for employment is provided. A three-storey building has been established for training and related events. In 2004-2005, the city, through TESDA, conducted a study on the informal economy that led to the organization of vendors, including informal vendors, into two groups: one federation and one association through the City Cooperative Office. The federation is an aggrupation

of small business cooperatives of vendors and non-vendors like those in the transport services. Associations include vendors still in the process of building up. TESDA is in charge of capacity building with support from the City Cooperative Office. These business groups present opportunities for skill enhancement and providing access to support services; further studies are needed to find details of their operation and function. The city continues to do market benchmarking (like the ones done in Imus, Cavite; San Nicolas, Pasig; and Bangkok, Thailand) to improve market physical infrastructure and operations. Market officials said that the city is searching for appropriate sites to locate the ambulant vendors. Small businesses can also access financial support through its "*Dagdag Puhunan*" (additional capital) program. Interviewed city officials maintain that, support services for micro- and small businesses, including those in the informal market sector, are being strengthened after the pandemic.

Interestingly, the informal vegetable and street food vendors in both Quezon City and Pasay City can substantially meet the kitchen and food needs of these dynamic cities with a huge working population who subsist on ready-to-eat/prepared or street food. These are construction workers, students, and employees in malls/shops, other institutions, and offices. Vendors report how the construction boom during the pandemic as well as the need for having food sources closer to households contributed to the growth of the informal vegetable and food sector. City officials describe how the cities try to maintain a compassionate attitude toward those involved in the informal market sector, trying to ease pressure to enable them to pursue regular business activities and exploring ways to provide services to them. They recognize that while taxes are not paid in their current status, they are important political constituents who earn livelihood that returns income to the city through their purchasing power and consumption multiplier effect. Largely, market improvement is a work in progress (Quezon and Pasay city profiles 2002, personal interviews with market officials).

The market system

Markets may be classified as primary, secondary, and satellite or *talipapa*. They can be publicly or privately owned and/or managed. For the purpose of this study, the markets that were surveyed are described (Annex 3).

Primary markets

The major markets are known as *bagsakan* ('drop off point') wholesale markets and have the following characteristics:

- Consist of large complex spaces with a huge number of wholesale and retail operators and establishments
- Include warehouses or *bodegas* for storage
- Operate actively at night, mainly between 8:00 pm and midnight, when stocks of goods are delivered by trucks in big volumes
- Goods in bulk are delivered, cleaned, and packed for delivery to wholesalers/retailers and institutional buyers (restaurants, hotels) to secondary and other markets in Metro Manila, provinces, cities, and municipalities up to about 3:00 pm

Retailing along the sidewalks and/or road islands stretching along the main highway goes on at the same time as wholesale activities. The hustle and bustle of market people cleaning, sorting, packing, and selling their products and hauling them away in *trikes* (motorized tricycles) that whiz through a myriad of people is impressive. YouTube videos can be accessed documenting the action. Two major *bagsakan* markets are the Divisoria Terminal Market in Manila and the Balintawak Cloverleaf Market in Caloocan City (Figure 2).

The Divisoria Terminal Market, the largest and considered the main market in Metro Manila, is located in Tondo, a major commercial district. Its proximity to North Harbor (for Visayas and Mindanao products) and easy access to Luzon provinces made it the biggest trading hub in the region. Consolidator-traders from the provinces bring their commodities (e.g., vegetables, fruits) directly to wholesalers in Divisoria. All trading of commodities provides the required volume for delivery to secondary medium and large retail markets in Metro Manila, and other provinces, cities, and municipalities.

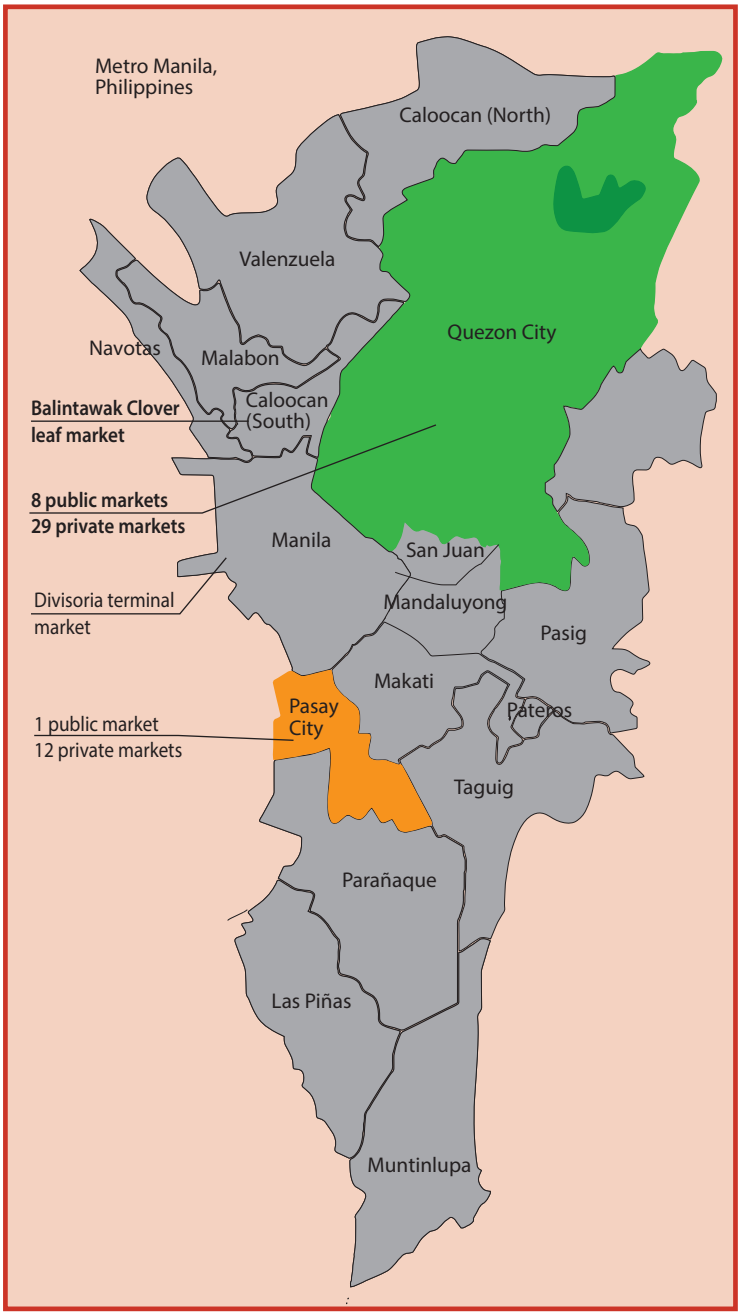


Figure 2. Location map of Metro Manila cities, including Quezon and Pasay cities, and the main *bagsakan* markets.

Divisoria has four major specialty markets: Asuncion market, with wholesale trading of fruits and root crops; Padre Rada market, divided between one building selling tomato and sweet potato wholesale and another building engaged in selling tropical vegetables such as eggplant, squash, string beans, green papaya, leafy vegetables, calamansi, onion, and ginger; El Cano Public Market, mainly on fish and meat; and the Divisoria public market utilizing a 9,000-sq-m old building for retail sale of vegetables, wholesale and retail sales of fruits, and wholesale trading of plastic toys and native products.

Based on the author's personal experience, the physical and administrative organization of Divisoria market has shown considerable improvement since the 1980s-1990s. Stalls are relatively clean and orderly and arranged in such a way that buyers and vehicles can pass through the streets during the *bagsakan* peak hours. The wholesaler-retailers sell their wares mostly just near their warehouses; the retailers sell along the road island stretch. Many retailers are actually sub-units of the main wholesalers, selling on a percentage basis vegetables from the highland (onions, garlic, tomato) and other high-value produce. Those who are independent are informal vendors who sell a mixture of vegetables, many of which are greens coming from peri-urban farms. They operate a little longer than the main wholesalers, up to about 5:00 am, after which they continue selling in secondary markets and/or *talipapa*. The road island selling should be done by that time, ready for another day of business.

Divisoria market buildings are privately owned and trader businessmen pay a monthly rent for their stalls and warehouses. They also register and get a business permit from the city of Manila. The city oversees the orderly operations

of the market 24 hours, 7 days a week. The barangay maintains a 24/7 office in the market also, which is manned by a barangay *tanod* (peacekeeping official of the village). This person collects PhP 20 (US$0.4) in the morning and evening from informal vendors, the cost of 'tickets' for morning and evening trading. The money is remitted to the city treasurer. This charge is well known as the "*etneb-etneb*" (the reverse spelling of *bente-bente,* meaning twenty-twenty in English). This catch-phrase for the daily trading ticket was coined by a popular former mayor, who came up with words and phrases that touched the hearts and minds of ordinary people while pushing through new policies and regulations. The local leadership has been quite successful in improving the Divisoria market in terms of cleanliness, orderliness, and efficient administration.

The market has a system of garbage and waste collection, which in itself is an income source to pickers and handlers who collect trash/garbage from the sellers (i.e., paid by the sack depending on size) and deliver these to the main garbage truck. This waste management system needs further assessment to effect improvements, guide policymaking, and become a useful tool to sustain agrifood market systems.

The Balintawak Cloverleaf market is located on the border of Quezon City and Caloocan City and is mainly accessed by nearby secondary and satellite markets, especially those of the Quezon city markets. It is a complex of 11 different markets of wet and dry goods along Epifanio de los Santos Avenue (EDSA). Agricultural products from areas north and south of Metro Manila are delivered in volumes, driving prices low. The schedules and night market activities practiced in Balintawak are the same as those in Divisoria.

The Balintawak Cloverleaf market and Mega-Q Mart are major trading areas along EDSA. Goods are distributed to secondary wholesale/retail outlets in eight public markets, 29 private markets, and 31 talipapa in Quezon City (Figure 2).

The biggest distribution point is the Commonwealth market in District 2, which also has a *bagsakan* night market. Other wholesale markets in Metro Manila include Valenzuela, Blumentritt, Paco, Mutya ng Pasig, and New Muntinlupa, which purchase a substantial volume of commodities from the Divisoria market.

Secondary markets

Secondary markets are those mainly operating in the different districts (political or business) of the cities, which could either be public, meaning owned and managed by the local government; under a public-private partnership (PPP), where the market is managed by private business but the land and/or infrastructure is owned by government; or private, where the market is managed privately on privately owned land. These markets usually open from 2:00 to 5:00 am, but the bigger ones like the Libertad and Commonwealth markets usually start earlier. Secondary markets can have *bagsakan* points and schedules, especially with vegetables. This is the case with markets like Wowee and Commonwealth, which have strategic trading links. They usually open from 6:00 pm to12 midnight for this purpose.

The secondary markets surveyed in Pasay City include Libertad, the city public market, and Cartimar and Wowee, which are both private. They are all less than a kilometer away from each other and are very near transport routes at the heart of the city. The Pasay City public sector also has a role in the 12 private markets scattered around the city. It oversees registration/licensing, health and sanitation, garbage collection, and price monitoring (Figure 2).

Secondary markets are open and usually have a dominant position in sales of staple goods, fresh fruits and vegetables, and fresh and frozen meat and fish. Both vendors and officials explain this appeal: urban consumers are able to access the freshest produce without needing





Divisoria is the biggest wholesale and retail market in Manila, which is the major source of vegetables traded by vendors selling in private and public markets in Metro Manila and nearby provinces.

(a) Sweet potato wholesaler seller usually the bodega or warehouse in Divisoria "bagsakan" market.

(b) Wholesaler and retailer of vegetables and spices in Divisoria.

Primary Market



The Commonwealth market in Quezon City is the biggest private market in Metro Manila: (a) vegetable section located in the southeastern block near the waste collection facility. About six stalls around this area in photo specialize in leafy greens from peri-urban farms in La Mesa Dam, from Pangasinan, and from wholesale bagsakan in Balintawak terminal market. Vegetables are delivered at night.



(b) Highland vegetables are sourced from Divisoria or brought by traders from wholesale markets in the northern provinces (Pangasinan, Benguet).

Secondary Markets



Mega Q Mart is a secondary private market along EDSA in Quezon City. (a) a big section with a variety of fruits and rootcrops (sweetpotato, yam, others). This big private market has an airconditioned grocery store with on-line selling and delivery services. Crates for agriculture produce and other postharvest utilities are also available.



(b) a number of vegetable stalls show produce from Benguet, Cordillera.



The Pasay public market at Libertad deals more with dry goods and the wet market; (a) regular fruit stalls on the side of the market near the vegetable section.

(b) the wet section has lined stalls for fish and meat.





Stall in the vegetable section of Cartimar market in Pasay City. Vegetables are organized in plastic trays, usually classified into leafy greens and fruity types. Vendors in secured permanent stalls are licensed and usually have selling facilities like digital weighing scale, refrigerator, and storage space.



Wowee Market along Taft Avenue, Libertad, Pasay City, is more active during the night: from 6pm to 2am. It is a small time "bagsakan" (wholesale deals) of vegetables from CALABARZON provinces like Laguna and Cavite.



Bgy 91 talipapa in Libertad, Pasay City (Primero de Mayo private market) just next to the Pasay City public market. Informal vendors' vegetable stands locate along the road and the peripheries of private makeshift stalls.

Satellite Market



A vegetable vendor in Primero de Mayo private market in Libertad, Pasay with makeshift stalls along the road selling commonly used vegetables like leafy greens, chayote, carrot, bitter gourd, taro and string beans.

Vendors manning well-structured stands that lined along the vegetable section of the Pasay City public market.



Informal Vegetable Vendors



A vendor selling a variety of fresh vegetable (leafy greens, highland and lowland vegetables) in wholesale and retail at Commonwealth private market in Quezon City



Vendor in Primero de Mayo private market in Libertad, Pasay City along the inner road makeshift stall; slicing and cutting vegetables ready mix for popular local dishes life pinakbet (i.e. eggplant, squash) and for chopsuey (carrots, cabbage). These are usually vegetables left over for non-premium or irregular sizes but still fresh for the day.



Vendor in a private market in Libertad, Pasay City, selling a variety of limited selection of species and vegetables in a cart along the main road of the market.

refrigeration. These markets are near homes or offices, offer lower prices, and have greater variety than modern retail stores. They also provide customers the opportunity to taste and inspect unpackaged fresh produce, enhancing consumer trust. These advantages often outweigh issues of congestion, poor hygiene, lack of product presentation, or stressful shopping experience.

The Libertad public market occupies about 13,378 sq m (ca 1.34 ha) with 1500 stall holders. It has a market administration office that works 8 hours, and a market operations office with 24/7 working time. A market inspector mans the administration office on weekdays with staff. The operations office has two shifts, morning and evening. The market has a water supply for general cleaning and stall use, toilets for male and female, and a waste management system in place. All these facilities need further improvement. Waste and garbage are collected by the city truck collector and unloaded to a sorting area at a corner of the market where the waste is separated into organic and inorganic. Organic waste is treated to reduce odor in preparation for processing in a bio-reactor facility two blocks away from the market. Processing includes mixing with sawdust and charcoal dust, shredding, and settling to produce a soil amendment that is available, free of charge, for the city's barangay urban gardening initiatives, which grow vegetables and ornamentals (Graham 2022).

Overall market operations are run by about 80 staff, including office and maintenance staff, guards, utility workers, and laborers. The public market building has barracks with kitchen facilities on the 2nd floor that serve as accommodations for market staff.

The Wowee market is a relatively small private market (ca 600 sq m) just about 500 m away from Libertad public market. Here, a night *bagsakan* market operates from 6:00 to 12:00 pm only for vegetables that come mostly from Cavite, Laguna, Batangas, Nueva Ecija, and Mindoro. This was established in 1997 as an outgrowth of the White House Market in Barangay 93 that now has become a major market for fruits, bananas, and plantain. Most informal vegetable vendors in the Libertad public market and in the nearby *talipapa* Primero de Mayo get the green vegetables from Wowee between 12:00 and 3:00 am. At times when traders bring vegetables straight from the Cordillera to Wowee, vendors buy from there at cheaper prices.

Cartimar is a private market with only about 500 sq m of wet market area selling vegetables, fruits, fish and aquatic products, meat, and eggs from local and imported sources; the latter coming from Taiwan, China, Japan, South Korea, and other Asian countries. It serves the middle to upper income classes as the goods sold here are of better quality, many of imported content, with clear quality grading and packaging. Prices are relatively higher but reasonable compared with those of similar goods in high-end supermarkets. Vegetable and fruit stalls are similarly proportioned, about 30-40 sq m, with refrigeration as necessary, digital weighing scales, and orderly merchandising in flat, boxed, or fitting containers, with enough lighting. There are collapsible hard screens around the store for evening protection. The wet market is maintained whole day by staff cleaning the floors regularly on the hour. Display areas are tiled and water is adequate for cleaning the tops. Fish and meat displays are orderly and classified by meat cut or product type. Overall, sellers and staff are courteous and customer-oriented. Toilet facilities are within everyone's reach. It operates from 2:00 am (when vegetables and other goods traded wholesale are made ready for volume delivery) and closes at about 1:00 pm. Cartimar is, in fact, a popular market for both wet and dry goods. No informal vendors are found around this facility.

The secondary markets surveyed in Quezon City include the

Commonwealth and Kamuning markets. The Commonwealth market is the biggest in Quezon City, 7 ha in total area; a complex of several buildings with assigned goods for each: dry goods, meat, fish and various seafood, house and plastic wares, dried fish and eggs, vegetables, and culinary items. It is under PPP, privately operated (i.e., administration and operations) through a franchise from government for the use of government property. Stall owners pay rent to the private company franchisee. The market operates night and day, with the *bagsakan* of vegetables occurring from 9:00 to 12:00 pm. Retailers source their products both from Divisoria and Balintawak, depending on the kind of vegetable and the season, with the latter causing price fluctuations. Most green vegetables are delivered during the night *bagsakan*; these come mainly from La Mesa Dam, Bulacan, Pangasinan, and Rizal.

Kamuning is a public market that is traditionally popular for textile/fabrics and related goods/finished products, but it also has a thriving vegetable and fruit section. The city government, through its Market Development and Administration Department, recently had groundbreaking activity for the construction of a three-storey Kamuning public market. This aims to provide better space for both vendors and market goers.

Along sidewalks and at strategic peripheries of both Commonwealth and Kamuning markets, informal market vendors operate. Direct observations of market practices of vendors and waste management and infrastructure, including sanitation, highlight the issue of hygiene in many markets, public and private. The dismal reputation of markets for poor sanitation was, to some extent, confirmed through studies of contamination of vegetables as well as of money (paper and coins) circulating in markets. Bacterial and parasitic contamination was detected in 45% of vegetable samples from selected Metro Manila markets (Su et al. 2012). In a later study, 70% of paper money samples were found to have bacterial contamination (Su et al. 2015). Because of extensive trading of vegetables among various markets, large-scale contamination is possible, an alarming scenario considering the risk of disease incidence. While a recent survey indicates better vegetable handling, merchandising, and packaging in markets, a large room for improvement exists (Su et al. 2012). The informal market vendors are in a more precarious situation as access to water may not be adequate in their places of business. The potential for interventions lies in all market levels, including the informal market vendors, in particular, improving vendors' knowledge and understanding of the basics in food hygiene, sanitation, and related health issues; improving practices and skills to implement them; and providing support services to sustain such efforts. A transformation of vendor knowledge, attitude, and behavior is imperative.

Talipapa or satellite markets

The informal vendors thrive abundantly in the *talipapa* or satellite markets, which are strategically located in the barangay. To sell in the *talipapa*, one only needs a barangay permit; neither registration nor licensing is required in most cases. The barangay conducts irregular monitoring of these markets. In Quezon City, however, with a city ordinance on the informal economy in place, registration and licensing of hawkers and informal vendors are being pursued. Implementation is still a work in progress.

The biggest *talipapa* surveyed is Primero de Mayo of barangays 91 and 92 in Pasay City, two blocks of privately owned market next to the Libertad city public market. Scores of informal vegetable and fruit vendors and a handful of eateries locate in the area, and these have been operating for 2 to 10 years or more. Stalls are usually makeshift, impermanent structures of bamboo or cheap wood. Some kind of daily rent is paid to the private owner, which ranges from PhP 100 to PhP 600 per day, depending on the size of the space allotted. This is not a license or

registration as there is no assurance that the space will be available beyond the day of rent payment. Vendors also pay for electricity connection (between PhP 100 and PhP 200 a day) and, in addition, market inspector's ticket fees of PhP 20 in the morning and PhP 20 in the afternoon (later remitted to the city treasurer). Mobile carts of fruits, vegetables, and root crops/bananas also pay PhP 20 up to 9:00 am, after which mobile vendors move to other areas in the barangay for house- to-house selling. Otherwise they are ejected. Some carts stay in a fixed area, usually extensions of a wholesaler with stall (e.g., eggs, pineapple, Davao bananas, apples).

The *talipapas* are the iconic market spaces of informal food vendors. *Talipapa* corners of vegetables (mixes for *pinakbet*, chopsuey, greens, spices), fruits (usually bananas, local fruits in season), and street food (chicken parts/pork/sausage barbecue, *kwek kwek*, pares, native snacks) have been set up, in increasing number, near construction sites, small shopping malls, school belts, hospitals, public offices, parks, or in clusters of low-middle-income residences. This outgrowth became more evident during the pandemic when selling and other related activities were allowed to bring food closer to consumers.

The vegetable industry: a backgrounder

Though diminishing in percentage contribution to gross value added in the economy, agriculture remains a major driving force in the country. Employing 70% of the population, this is where a large number of farming households earn their livelihood and get their food. Employment in agriculture and forestry decreased to 22.5% in 2022 from 24.5% in 2020 (PSA 2022). Gross value added in agriculture declined from 9.4% in 2015 to 8.7% in 2016, with share in gross domestic product (GDP) going down from 10.2% to 9.6%% in the same time period (PSA 2017b).

The vegetable industry contributes more than 30% to total agricultural production and is a major component of GDP (UNDP 2006). Production consists of highland and lowland cropping in the wet and dry seasons. Farm enterprises follow diverse chains. Some are engaged in intensive cultivation and/or contract farming for export, processing, or for high-end retail and food markets. Other enterprises involve peri-urban farms or integrated agro-ecotourism farms. More recently, during the pandemic, vegetable-based urban gardens in schools and in idle or vacant land in communities have been harnessed to ensure food security and improve livelihood. These gain importance as more programs are now geared toward food security and urban/community resilience, hedging against disasters and increased food vulnerability brought about by climate change and being proactively prepared to be food-secure amidst greater urbanization.

The Cordillera Administrative Region (CAR), Northern Mindanao (Bukidnon, Misamis Oriental), and Region VII (Cebu) are major producers of highland vegetables. Major production areas for lowland vegetables include regions I (Ilocos, Pangasinan), III (Nueva Ecija and Tarlac), and IV (CALABARZON) (NEDA 2007b). Region IV consists of the provinces of Cavite, Laguna, Batangas, Rizal, and Quezon, which are becoming major sources of green leafy vegetables and other lowland vegetables.

From 1980 to 2007, the area planted to vegetables grew steadily from 450,000 to 630,000 ha. However, by 2021, it went down to 535,100 ha. During the same period, production also steadily grew, from 3.5 to 5.8 million tons, at an annual growth rate of 2% , reflecting both increases in yield and area of production. Again, in 2021, a decline has been observed, only 4.5 million tons produced in that year (FAOSTAT 2007, PSA 2022). The pandemic and natural calamities in greater part caused the decline in recent years. But the tide is changing.

With improved technologies and seeds and effective strategies to reduce losses, as well as enhanced access to resources and markets, there is greater likelihood to increase vegetable productivity in the country. Vegetable cropping is a priority program for enhancing food security and farm income under Republic Act No. 7900 (1995); this focus has been maintained in recent administrations. Self-sufficiency in staples for human consumption and animal feed has been an overarching priority of government policy framework. Despite the seeming lack of incentives from government, the advantages of planting vegetables cannot be ignored. Vegetables such as eggplant, okra, gourd, and others are versatile and can be grown short-term. Vegetables can be cultivated as intercrops and multi-crops, they are suitable for temporary and small-area land use, and several croppings can be done per year.

Vegetables have been promoted as income-enhancing intercrops in coconut and cacao areas as part of land intensification and conservation programs on slopes and in peri-urban areas. The greater push for urban agriculture in recent decades also resulted in vegetable gardening being done in unconventional places using techniques like aeroponics; hydroponics; and vertical gardening of salad greens (lettuce, water hyacinth, sweetpotato tips, moringa, malavar spinach), fruit vegetables (eggplant, bittergourd, bottle gourd, lady finger/ okra, cucumber), herbs (rosemary, basil, oregano, lemongrass), and spices (pepper, tomato, leeks) in vacant or idle lands in subdivisions, schools, and barangays/ communities. During the pandemic, urban gardening has been intensified to ensure food self-sufficiency.

Demand for vegetables

The Filipino food culture is rice-based (or maize-based in Mindanao, Cebu) with fish or meat as viands, cooked with Malay, Chinese, Spanish, and American influences. Filipinos on the average consume rice at 110 kg per capita per year. Among regions, CAR (Cordillera Administrative Region) had the highest consumption, especially with their heirloom rice; the Zamboanga Peninsula and Central Visayas consumed more of corn, at 160 kg per capita. NCR would be just about the average, but it is low on the supplemental staples, camote and cassava (Table 4). Bread has become very popular for breakfast and snacks. Food is mostly non-spicy.

Vegetables are prepared as soup, viand ingredients, salad, or as a main dish with meat (e.g., *pinakbet*, *kare-kare*, chopsuey, mixed or pure vegetable *guisado*). In non-vegetable-producing areas, these are not a strong part of the daily diet; rice, fish, and meat are considered more important. Vegetable consumption in the Philippines is generally low (Table 4). In contrast to the WHO-recommended minimum average vegetable consumption, which is between 200 and 250 g/person per day, the average figure in the Philippines is 171.41 g/person per day (FAOSTAT 2022). Table 4 shows the very low consumption of vegetables in the NCR, which may reflect serious nutrient deficiency among many urban residents. FAO data reveal that such consumption is half of Thailand's and a third of Vietnam's (Dy 2019). In November 2017, retail prices of cabbage and eggplant in NCR were about twice those in Bangkok. The issue is whether cost affects consumption. During times of calamities, vegetable prices in the NCR go up. Such prices tend to grow fastest among the food groups. The supply-market dynamics related to volume, logistics, losses, and traders' cost-related hedging push prices up. Risks and uncertainties are usually high with long supply chains due to perishability and logistical concerns, especially during disasters and emergencies.

Eighty-eight percent of households bought the rice they consumed. Regional estimates showed this figure to be about 99% in NCR (Metro Manila) and the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). Buying

Table 4. Annual per capita consumption of food commodities in the Philippines.

Commodity/ average per capita (kg/year)	Selected regions	Per capita (kg)	Commodity/ average per capita (kgyear)	Selected regions	Per capita (kg)
Staples and supplemental staple					
Rice: 109.87	CAR Central Luzon Zamboanga P.	131.9 111.0 36.4	Corn: 14.7	Zamboanga P. Central Visayas/ N. Mindanao Rest of country	159.9 37.4 <1.0
Camote: 4.5	Zamboanga P. NCR & Ilocos	17.3 2.4	Cassava: 2.9	Zamboanga P. NCR, CLuzon & Ilocos	13.4 <1.0
Vegetables					
Ampalaya: 2.8	CAR, Cagayan Valley, Ilocos Central Visayas	3.1–3.4 1.4	Eggplant: 4.3	Zamboanga P. Cagayan Valley Davao R. NCR/ BARRM	7.2 6.7 6.3 3.5
Chayote: 1.6	MIMAROPA & CAR	0.3–5.8	Gourd: 1.0	Ilocos R. N. Mindanao	2.2 0.4
Squash: 2.9	Zamboanga P. NCR	5.5 1.6	Okra: 1.2	Zamboanga P. NCR BARRM	2.4 0.9 0.4
Carrots: 0.5	CAR Zamboanga P.	0.9 0.11	Cabbage: 1.1	CAR BARRM	3.1 0.4
Pechay: 1.2	CAR Cagayan Valley Zamboanga P.	3.5 2.4 0,5	Stringbeans: 0.04	Zamboanga P. Cagayan Valley NCR	4.1 4.0 1.04
Habitchuelas: 0.2	CAR Eastern Visayas	1.9 0.03	Mongo: 0.02	Cagayan Valley Ilocos R. Eastern Visayas	1.8 1.4 0.5
Tomato: 3.0	Ilocos R. Zamboanga P.	3.4 1.2	Onion: 2.3	Cagayan Valley Central Luzon Zamboanga P.	33.4 3.2 1.5
Garlic: 1.3	Central Luzon Bicol, Cagayan Valley Rest of the regions	1.9 1.7 <1.0			

Source: PSA 2017.

CAR = Cordillera Administrative Region, NCR = National Capital Region, MIMAROPA = Mindoro, Marinduque, Romblon, and Palawan, BARRM = Bangsamoro Autonomous Region of Muslim Mindanao.

of vegetables for consumption was the usual practice, according to 71–98% of households nationwide; 15–21% of households consumed their own-produced bottle gourd (*upo*), stringbeans, eggplant, and okra. Zamboanga Peninsula had the biggest percentages of households consuming own-produced vegetables: 60% for *upo*, 67% for stringbeans, 70% for eggplant, and 78% for okra. Across regions, NCR had the highest proportion of households that bought all the agricultural food they consumed, while Zamboanga Peninsula reported a big proportion of households eating their own produce. NCR consumers are wholly dependent on bought food (PSA 2017a).

Consumer consciousness about health and nutrition matters has grown in recent years. Vegetable salad bars have become important offerings in many restaurants. Provision of adequate food also means adequate nutrition, especially for the rapidly increasing urban population, which is projected at 64% (UNFPA 2008), thereby putting pressure on a mainly rural source of food.

Vegetable supply

The main drive of vegetable production is to supply the markets of Metro Manila (NCR) and other cities, provinces, and municipalities linked with trading channels. Since 1978, vegetable per capita availability has declined by 23%, to just over a quarter of the WHO recommendation for consumption of fruits and vegetables. Most of the decline

occurred during a 10-year period (1978-1987) (FNRI 2017). From 2015 to 2019, production of lady's finger/okra grew annually at 0.9%; that of bottle gourd decreased by1.9%; broccoli and lettuce increased yearly at 3.1%; and asparagus decreased by 16.5%. In 2019, native pechay production was 47.3 thousand metric tons, a decline of 1.4% (PSA 2022). Vegetable production is largely affected by weather disturbances: by drought, frost (as seen in CAR/Benguet highlands), or typhoons and, at times, by availability of seed. The major vegetable-producing areas—CAR, Ilocos, Central Luzon, and CALABARZON—are vulnerable to these risks. The pricing dynamics is driven by fluctuations in supply and the cost-push from low productivity, resulting in relatively higher prices of vegetables, on the average.

The country's vegetable supply chain exhibits an overlapping of long and short chains with a large mix of highland (i.e., 100-3000 m above sea level [masl]; temperate, semi-temperate) vegetables and lowland (i.e., up to 300-500 masl; tropical) vegetables being produced in different parts of the country in different agroecological zones. As shown in Table 5, highland or temperate/semi-temperate areas constitute the long chains as their produce are distributed through primary markets of big or metropolitan cities, which then move the vegetables to secondary and satellite markets (*talipapa*) in cities, municipalities, and barangays. Short supply chains characterize those that come from nearer production areas or peri-urban producers and mainly carry upland or lowland vegetables.

Table 5. Vegetable production in different zones in the Philippines.

Highland, temperate production		**Growing seasons**
Specialized production	CAR is the main production area of highland vegetables; also the mountainous areas and highlands of Southern Tagalog, Cebu, Negros and Mindanao. Multiple cropping (e.g. cabbage post- potato, carrot, and peas) is practiced in Benguet and Mountain provinces. Emerging crops include lettuce and asparagus. Linking vegetable production to land intensification and conservation practices for degraded environments and rainfed farming can improve production and enhance sustainability	Year-round: cabbage, Chinese cabbage, cucumber, shallot, climbing French beans Seasonal crops like potato, carrots with peak and lean months
Village production	Home garden and village vegetable production is promoted to improve subsistence diets and diversify local economies, including former rebel strongholds as part of development–for–peace initiatives. Production is also being promoted through schools. Tramline access is provided to help communities generated income, not simply to achieve self-sufficiency.	Cooler months French beans, tomato, chayote, carrots
Lowland, tropical production		**Growing seasons**
Vegetables after rice; in rotation or intercropped with other upland crops (seasonal)	Central Luzon is a major production area for lowland crops like eggplant, bitter gourd and tomato, yambean, and onions. Ilocos is the main production area, followed by Southern Tagalog or CALABARZON, which recently increased production, being a main supplier to Metro Manila and other cities/provinces (PSA 2021). Importantly, Pangasinan, Cavite, Laguna, Batangas and Bulacan are suppliers of leafy greens in Metro Manila	Year-round Bitter gourd, celery, eggplant, shallot, peas, Pak Choi, squash, yard-long beans, bell pepper Cooler months garlic, onion (low rainfall), winged beans (Sept/Oct) Year-round: cucumber Cool season: tomato
Peri-urban production; community and school gardening	Peri-urban production is promoted in partnership with local governments, international and national research agencies or universities, donors and NGOs. Focus is to develop economically and environmentally sound food systems that make use of waste or temporarily vacant land; aim is to enhance income, nutrition and lifestyle options for the urban poor. Innovative gardening (hydroponic, aeroponics, use of grafted tomatoes can be promoted as growers learn skills and gain confidence. Community urban gardens were promoted by the Department of Agriculture in the 1970's but were not consistently implemented. Intensive implementation during the pandemic; became an urban food sufficiency policy. Vertical gardening, hydroponics, and waste recycling for pots and media promoted (Quezon City; Pasay City, 2019)	Year round production depending on availability of seeds or planting materials

Sources: AVRDC-World Vegetable Center 2008; updated based on project market survey data, Aug 2022, of the CIP Resilient Cities Work Package 2.

CAR is traditionally the major supplier of temperate vegetables such as potato, carrots, cabbage, chayote, broccoli, and cauliflower. The Ilocos region and Central Luzon are traditional sources of lowland vegetables, especially tomato, onion, tropical root and tuber crops (sweetpotato, yam bean), eggplant, and gourd. The peri-urban areas south of Metro Manila (CALABARZON) has increasingly become an important source of lowland vegetables, especially the green leafy ones (Table 5). However, there are reported threats to vegetable production, especially in Cavite, Laguna, and Rizal owing to the conversion of crop-growing areas into residential/commercial areas.

The NCR agrifood system and the informal sector

Diversity characterizes the NCR agri-food systems. It consists of evolving and overlapping traditional, modern, and informal subsystems. NCR gets its food supply from various sources using long domestic supply chains (CAR, Ilocos, Central Luzon, Mindanao), short supply chains (CALABARZON, Bulacan, peri-urban gardens), as well as imports. The flow of vegetables from the different supply areas runs through the primary "*bagsakan*" wholesale markets in Divisoria and Balintawak or through the secondary "*bagsakan*" markets (Commonwealth, Quezon City; Wowee, Pasay City) and then through satellite or *talipapa* markets in the barangays. Retailing in all market levels is done mainly by informal vegetable vendors.

Current urban agricultural systems have not yet reached mainstream markets; but they have a presence in high-end niche markets selling organic products or in pilot institutional markets like the KADIWA coordinated by the Department of Agriculture in partnership with some local government units (LGUs).

Supermarkets, specialty food shops, and e-commerce spur shopping innovation of modern supply chains that cater to middle- to high-income consumers. However, the relatively fresh food, the convenience, and the lower prices attract consumers to open markets and small independent retailers (public markets, *talipapa*). The informal food markets are integrated with the traditional markets at various levels: that is, in the primary, secondary, and satellite markets. Informal food vendors cater to the urban poor, as well as to the emerging non-poor consumers with certain acceptable tasty street food (e.g., complete meals like *pares, mami*, *arroz caldo*, fried chicken). Food buying is conditioned by income, location, transport, and time. Food insecurity in low-income countries is higher in urban than in rural areas, rising to more than 70% in urban slums (FAO 2013). Thus, a critical food safety net is offered by these informal food markets.

Metro Manila is highly dependent on different supply chains for popular dishes. CAR supplies over 90% of highland vegetables for the widely consumed *chopsuey* (e.g., cabbage, carrots, and potato). The lowland regions (Ilocos, Central Luzon, CALABARZON) supply the main ingredients for *pinakbet* vegetable stews (e.g., eggplant, ampalaya, pechay, sitao, tomato, onions, and green leafy vegetables). Lowland vegetable sources are more diversified, including areas in both north and south of Metro Manila. Observed inefficiencies in the supply chain (i.e., ratios between retail and farm prices being 2.2–3.3) could in part be due to supply chain constraints: low yield, postharvest losses, and retailing expenses of small farmers (Dy 2019).

The marketing of vegetables goes through a complex chain of intermediary actors from farm to final consumers (i.e., households, institutional buyers). Figure 3 shows the flow of goods from producers to consolidator-traders who bring the produce to the wholesalers in Manila.

Long supply chains (green arrows) usually refer to vegetables from the Cordillera highlands (Table 6):

(a) Producers > consolidator-traders > wholesalers (Metro Manila) > wholesalers and retailers in secondary markets (city markets) > retailers (smaller markets, *talipapas:* informal vendors) > households
(b) Producers > consolidator-traders > wholesalers (primary and secondary markets) > institutional buyers (hotels and restaurants, resorts, enterprises like processors) and informal vendors> households
(c) Producers > vegetable packing houses > supermarkets, food chains, hotels, restaurants > households

The short supply chains (red arrows) refer to lowland vegetables coming from nearby provinces or peri-urban areas of Metro Manila (Table 6):

(a) Producers > consolidator-traders > wholesalers in Divisoria-Padre Rada, Balintawak markets > retailers in secondary markets including *talipapa* informal vendors > households and institutional buyers
(b) Producers > consolidator-traders > retailers including *talipapa* informal vendors

The length of vegetable supply chains can be determined by the number of actors in the chain as well as by geographical distance (Blay-Palmer et al. 2018). So, on one hand, irrespective of geographical distance but of short trade tier, a supply chain could be regarded short by supermarkets and institutional buyers with direct links to producers. Similarly, vegetables from the Cordilleras being delivered to a packing house operator in Laguna is a short supply chain. Survey results suggest that the informal vegetable vendors in Pasay and Quezon City source their goods directly from wholesalers in Divisoria or Balintawak or from consolidators operating in smaller night markets like Wowee and Commonwealth

Table 6. Vegetables traded in wholesale and retail markets (English, common and scientific names) and main supply areas.

Common name	English name	Scientific name
Commonly supplied from the highlands: from the Cordillera, especially Benguet Province		
Karot	Carrot	*Daucus carota*
Repolyo	Cabbage	*Brassica oleracea* var. *capitata*
Litsugas	Lettuce	*Lactuca sativa*
Brokuli	Broccoli	*Brassica oleracea* var. *italica*
Kuliplor	Cauliflower	*Brassica oleracea* var. *botrytis*
Patatas	Potato	*Solanum tuberosum*
Sayote	Chayote	*Sechium edule*
Tsitsaro	Chicharo/lima bean	*Phaseolus limensis*
Lowland vegetables: commonly supplied from lowland peri-urban farms and gardens; CALABARZON – Laguna, Batangas, Rizal and Quezon provinces; and Bulacan		
Malunggay	Horseradish	*Moringa oleifera*
Kangkong	Water spinach	*Ipomoea aquatica*
Alugbati	Malabar spinach	*Basella alba*
Kinchay	Celery	*Apium graveolens*
Atsal	Bell pepper	*Capsicum annuum*
Ampalaya	Bitter melon	*Momordica charantia*
Sili	Chili	*Capsicum frutescens*
Tanglad	Lemon grass	*Cymbopogon citrarus*
Pechay	Chinese cabbage	*Brassica rapa* subsp. *pekinensis*
Kamatis	Tomato	*Solanum lycopersicum L.*
Talong	Eggplant	*Solanum melongena L.*
Sitaw	Stringbeans	*Phaseolus vulgaris*
Upo	Bottle gourd	*Lagenaria siceraria*
Pak choy	Bok choy	*Brassica rapa* subsp. *chinensis*
Okra	Lady finger	*Abelmoschus esculentus*
Puso ng saging	Banana blossoms	*Musa acuminata colla*
Mustasa	Mustard greens	*Mustard juncea*
Labanos	Radish	*Raphanus sativus*
Sigarilyas	Winged bean	*Psophocarpus tetragonolobus*
Kundol	White gourd	*Benincasa hispida*
Patola, sikwa	Sponge gourd	*Luffa aegyptiaca*
Patani	Lima bean	*Phaseolus lunatus*
Mani	Peanut	*Arachis hypogaea*
Bataw	Hyacinth bean	*Lablab purpureus*
Kalabasa	Squash	*Cucurbita maxima*
Sibuyas "dahon"	Onion leaves/leeks	*Allium porrum*
Lowland vegetables from North and Central Luzon		
Sibuyas "Bombay"	Onion bulb	*Allium cepa*
Bawang	Garlic	*Allium sativum*
Monggo	Mung beans	*Vigna radiata*
Kamote	Sweet potato	*Ipomoea batatas*
Gabi	Taro	*Colocasia esculenta*
Gabing San Fernando	Yautia	*Xanthosoma sagittifolium*
Singkamas	Turnip	*Brassica rapa* subsp. *rapa*
Kamoteng kahoy	Cassava	*Manihot esculenta*
Ube	Yam	*Dioscorea alata*
Luya	Ginger	*Zingiber oofficinale*

Note: The grey-shaded cells are those that come from peri-urban farms in Cavite, Laguna, Bulacan, and Batangas. Green leafy vegetables are also sourced from Pangasinan traders and brought to the night wholesale markets in Balintawak, Caloocan and Commonwealth market, Quezon City.

Table 7. Urban and peri-urban farms and gardens, markets and uses.

Specialty production area	Marketing	Consumption/ end use
• Integrated farms/ organic	Walk-in buyers, approaches orders, usually direct selling	Households, hotels & restaurants, specialty food shops, processors
• Agro-eco-tourism farms	Walk-in buyers, orders, direct selling	
• Urban community gardens	Walk-in buyers, orders, direct selling	
• School gardens	Mainly for food and nutrient sufficiency school program	Students/pupils feeding program, teachers, parents

in order to shorten the chain, logically to reduce cost as well as to ensure the freshness of the produce. The vegetables delivered in smaller *bagsakan* night markets usually (see Table 5) come from nearby CALABARZON provinces (especially Cavite, Laguna, and Batangas) and peri-urban farms and gardens in Bulacan and La Mesa Dam, Quezon City. With mobile phones, informal vendors can decide where to buy pechay or cabbage and green vegetables: whether from Divisoria and Balintawak (primary *bagsakan*) or from secondary *bagsakan* markets like Wowee and Commonwealth. For the latter, however, the proximity of vendors to Balintawak and Commonwealth matters to reduce logistics cost.

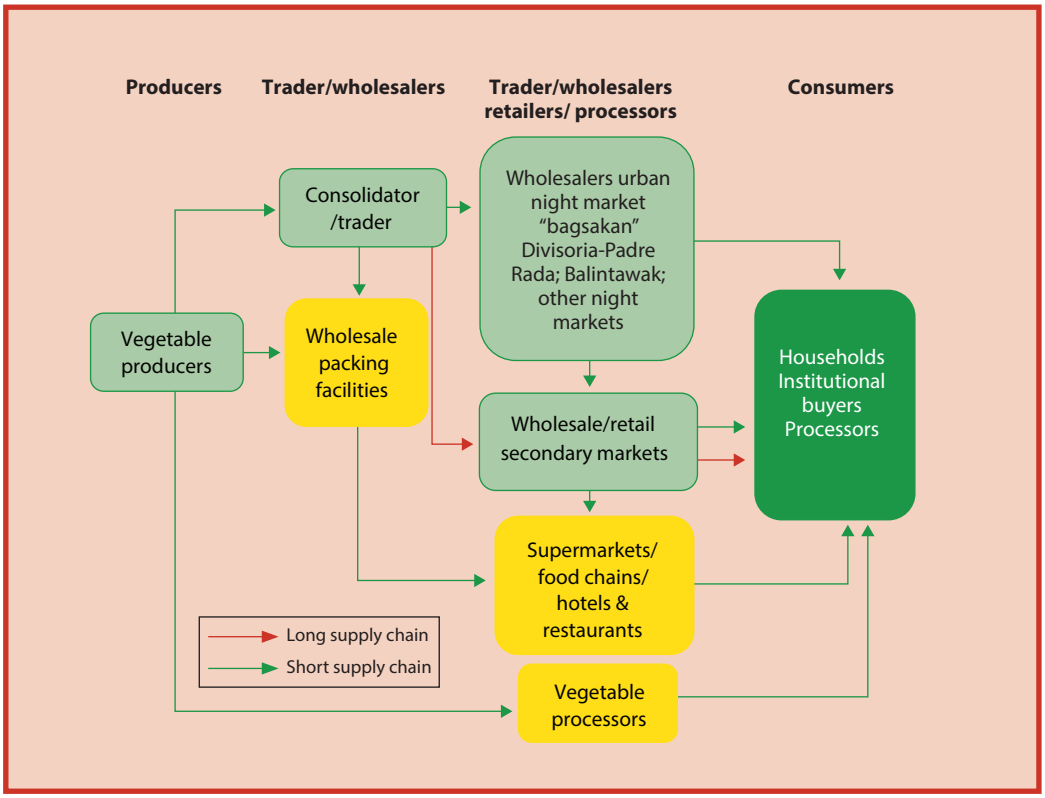
To informal vendors, other factors are also important, like the *suki* system, usually with embedded services like credit and/ or financing and filial relationships with some vegetable sources (i.e., relatives, friends). Vendors can also get price discounts from their *suki* supplier.

The specialty production areas may be regarded as peri-urban farms or gardens that produce vegetables like cabbage, lettuce, mushrooms, eggplant, and okra. Innovative farming landscapes are geared toward agro-ecotourism, integrated organic vegetable production with livestock, and school and community gardens (Table 7). The schematic flow of the supply chains is shown in Figure 3.

The observed vegetable supply chains in Metro Manila are indicated in Figure 3:

1. The long supply chains (green arrows) link rural producers to wholesalers and retailers (in the primary and secondary markets)

Figure 3. Vegetable supply chains in Metro Manila



in the urban area through consolidator-traders, then onto the final consumers (institutional, households). Informal vendors participate significantly in all types of markets.

2. The institutional supply chains (yellow blocks) involved in direct distribution via the supermarkets, hotels, big restaurants, food processors and manufacturers through wholesale packing operators or direct wholesalers.
3. The short supply chains (red arrows) link producers in urban and peri-urban areas to the secondary markets, then to final consumers. This occurs mostly through informal vendors in secondary and satellite markets.
4. The specialty multi-functional components of short supply chains (Table 7) relate to urban agriculture initiatives. This is usually directed to food self-sufficiency in cities, which greatly advanced in Metro Manila during the pandemic. In addition, agro-ecotourism, educational objectives, and nutrient security issues for school children have been integrated in the recent decade.

The vegetable supply chains continue to evolve, considering the impact of the pandemic: high cost of logistics, increasing consciousness for convenience, food safety and health. As per survey interviews, the fast emergence of e-marketing and social media-based food chains during the pandemic has caused informal vendors to worry about how these trends could encroach on their vegetable sales.

The informal food vendors in the pilot sites

Informal vegetable vendors

The informal vegetable vendors are a large part of the retailers' sector. For example, inside the Pasay city public market, only six regular stall owners are officially registered/licensed as vegetable sellers. Along sidewalks and in makeshift stalls in privately owned *talipapa* in barangays 91 and 92, more than a score of ambulant vendors has been operating daily for at least 2 years; some are doing so for 10 years or more, continuing their parents' or relatives' vegetable business. They are not registered with the city, but they give PhP 20 payment daily to the market inspector (remitted to the city treasurer), stall rent to the private land owner at PhP 100-600 per day, depending on stall size, and some amount for utilities like electricity. Permission to locate and sell in the *talipapa* is sought from the barangay captain.

Informal vegetable vendors are commonly found in the fringes and sidewalks near private and public markets in Pasay and Quezon City, construction sites, and barangay *talipapa*.

Vendor profile and business characteristics

The vendors interviewed are mainly long-time residents in Metro Manila; some originally come from the island provinces in the Visayas (Leyte) and from places south of NCR (Masbate) who came to Manila seeking better livelihood opportunities (Table 8). While it may be said that these vendors operate on a day-to-day basis (as they are not officially registered), almost half have been in the business for 20 years or more. Vendors in Quezon City have been longer established: 7 out of 10 have been doing business for more than 20 years, with two interviewees for more than 40 years. In Pasay, 7 of 10 have been working as vendors for 20 years or less (Table 8). Some have intergenerational succession in the location and operation of business; they initially work as helpers of their parents or uncles/aunts and they then continue the business afterward. Given the limited sample, this trend needs further exploration as literature suggests that

Table 8. Profile of the informal vegetable vendors.

Characteristic	Quezon City, n=10	Pasay City, n=10
Place/ethnic origin	Masbate, Leyte, Marikina, Quezon City (Commonwealth, Kamuning)	Pasay
Years in business	50-60 = 1 40-49 = 1 20-30 = 5 15-19 = 3	40-45 = 1 30-40 = 1 10-20 = 4 3-9 = 4
Type of business	Individual/household	Individual/household
Gender of main seller	F = 6 M = 4	F = 8 M = 2
Sources of income	Vegetable selling main source = 7 Vegetables, 10-30% of income = 3 Plus vlogging income of siblings and other sources = 2	Vegetable vending mainly = 8 Plus: Income of other family Members = 2

street vending offers ready access to new or temporary migrants (Kawarazuka et al. 2018).

Informal vegetable vending is an individual- or household-based business, contributing about 70% of household income. Most said that it is the only business they know, continuing to sell for years despite the lows especially during the early pandemic, recalling their experience with lows and highs in supply and prices in the past. They have become adept in dealing with varying locations by maintaining good relations or giving some concessions. At least 60% of the vendors are female, usually relying on male teenagers to help carry load. Vegetable selling is the main source of household income for 70-80% of the vendors. Others are supplemented by incomes of children and spouses from services (Table 8).

Selling in the fringes of formal markets and in *talipapa*, these vendors engage with walk-in consumers from nearby residential areas, owners of local canteens and eateries (*carinderias*) whose purchase patterns are almost daily rather than in bulk. The small restaurants and eateries usually have long time relationships (*suki*) with the vendors, enjoying such benefits as reserved supply or priority in quality selection. In Pasay where the *talipapa* Primero de Mayo consists of two big street blocks and ambulant vegetable vendors occupy an easily accessible stretch of stalls, about 90% pay a daily rent to the owner of the place. Stalls are makeshift with rent at PhP 100/sq m (Table 9).

All the vendors interviewed have a positive opinion about their business as a means of livelihood. Though still recovering from slow business, even loss, during the pandemic, they were able to survive even without support for business during these difficult times. Considering that Pasay is a heavily populated area, vendors were able to attract new customers from nearby residences during the lockdowns. However, vendors whose stalls are in secluded locations, like those in Kamuning and Commonwealth markets, had low sales, forcing some vendors in Kamuning to quit the business. Meanwhile, the pandemic also brought in new informal vendors along the highways or sidewalks, which are more accessible to customers. They look forward to government support in the near future by way of funding and training assistance. They would like some capital inputs as assistance to tide them over. The high cost of vegetables, together with perishability problems and customer attitude pose challenges (Table 9). The pandemic made big markets like Mega-Q Mart and some vendors to sell online, which brought some competition to the informal sellers. These developments need to be further assessed vis-à-vis plans by the city governments of relocation and regularization of the informal vendors.

Food supply chains

In conjunction with Figure 3, Table 10 further describes the production to consumption chain of the agrifood system where the informal vegetable vendors in the pilot sites are enmeshed. The directional green and red arrows in Figure 3 correspond to the long and short vegetable supply chains specified in the green and red cells in Table 10 as linked to the different types of markets in the pilot sites. The informal vendors are largely

visible in these chains and not in the institutional supply chain.

A diverse variety of vegetables (Table 6) grown according to suitable agroecologies come from CAR (highland vegetables), other northern regions (Ilocos and Central Luzon), lowland/upland vegetables), and around Metro Manila (CALABARZON, lowland vegetables). These are delivered to primary wholesale markets, which find their way to secondary, and then to satellite markets. As previously noted, informal vegetable vendors are firmly integrated in the secondary markets and strongly integrated in satellite markets (Table 10). In the night market, they are also active in the primary *bagsakan* along road sections; they then transfer to the secondary or satellite markets during daytime. As informal sellers, they follow longer food supply chains than big distributors and thus form an essential link from the farm to the table. Urban residents, restaurants, canteens, and small eateries near vendors' locations can buy relatively cheaper fresh vegetables compared with those offered in the malls. Some of the informal vendors with stalls have mobile carts that peddle around the streets beyond permissible selling hours in the open market, usually after 9:00 am. Their customers are those around densely populated, low- to middle-income residences.

Produce from peri-urban farms finds its way to the vendors in Commonwealth market, Quezon City, with 10% of their supply reportedly coming from farmers around La Mesa Dam and Bulacan (Table 10). Farmers directly deliver their produce in the night market. Vendors in Pasay also experienced selling urban produce during the pandemic through the KADIWA (DA-LGU food distribution initiative) stores, where they can get vegetables at low prices. They welcome improvements along this chain as this means fresher and better quality produce, less logistics cost, and easily manageable information on supply volume and prices. The urban agriculture initiative, which, at the moment, is mostly geared toward self-sufficiency, holds promise as a commercial venture, with more inputs from further assessment of agrifood systems.

Table 9. Business information about informal vendors.

	Quezon City	Pasay City
Customers/buyers	Vendors in ***talipapa*** Households, walk-in Restaurants, canteens, carinderias/eateries	Households, walk-in Small restaurants, canteens, carinderia/ eateries (ready orders; ***suki*** ready pick up)
Location payments	Rent; transferred from relative- 4 Rent daily = 3 Contract annual = 3	Rent/ambulant = 9 Bought right to location = 1
Problems or challenges	Slow sales; secluded area Capital Location, if secluded High cost of veggies especially during bad weather months Competition from on-line sellers Perishability of vegetables; losses	Attitude of buyers; demanding, want low price Perishability of vegetables; losses Creditors not paying
Business attitude	Good livelihood; only option for having long lasting business Still continuing business Will try on-line selling	Good livelihood, but affected by pandemic; hope for market rebound Will still engage in business in the next 3 years
Willingness to be trained	Positive attitude Time and store help to be considered	Positive attitude Time to be considered
Willingness to work with others	Positive attitude especially toward working with government to ensure supply of products, with low prices; willing to join government efforts in facilitating marketing	Positive attitude
LGU support given to businesses.	Government stores source some vegetables at low price Others, no support from LGU One became a beneficiary of Angat Buhay and government support	None
Help in business	No help/hire = 4 Family member help = 6	No help/hire = 2 Family members = 8
Business during the pandemic	Good business, increased business for retail in talipapa; house deliveries 3 Low sales 1 but may rebound	Business slow down during the pandemic; hopes for regain of market, sales

As to risk and efficiency issues in the supply-market chain, both producer-suppliers and vendors are faced with high costs and prices caused by a variety of factors, though at different levels: high cost of inputs and resource use (labor), logistics, especially with supply being largely affected by weather/climate

Table 10. Summative food supply and market chains involving informal vegetable vending.

Production	Trading (W)	Trading (W/R)	Retailing	Consumption
Production region	**Primary wholesale trading**	**Secondary wholesale/retail trading**	**Satellite retail trading**	**Consumers**
CAR	Divisoria Terminal Market	**Informal food vendors**		Walk-in buyers, Institutional buyers (restaurants, hospitals, schools), canteens, eateries
Ilocos		a. Commonwealth	*Talipapa* near secondary markets, bgys.	
Central Luzon		b. Kamuning		
CALABARZON	Balintawak Cloverleaf Market	c. Libertad	Primero de Mayo; *talipapa* across bgys.	
Peri-urban: Bulacan,		d. Wowee		
QC urban gardens		e. Mega Q Mart f. Cartimar	Talipapa across barangays	

disturbances, in addition to low yields in some areas. Vegetables are easily affected as they are perishable and tend to have increased wastage during extreme weather events both at the production and distribution nodes of the chain. Traders usually hedge to avoid such losses and costs and fix selling at relatively higher prices, while buying from farmers at relatively low farm gate prices. The informal vendors who are at the receiving end of the third or fourth tier of the distribution chain already bear the bigger brunt of increased prices. Not surprisingly, buyers complain of high prices and cut down on purchases–the common woes of vendors (Table 11).

The stakeholders (e.g., LGUs, DA, DTI, private sector, TESDA, DOH, NGOs) across the vegetable supply chain include a mix of public and private agencies that

Table 11. Challenges and opportunities in the vegetable supply chain.

Production	Trading/Wholesale	Trading/ Wholesale-Retail	Retailing	Consumption
Challenges				
Supply disruptions from weather/ climate disturbances that resulted in high prices	Poor condition of physical infrastructure, buildings, roads/drainage systems	Poor physical infrastructure, especially in vegetable sections of Commonwealth and Wowee markets	High prices of vegetables caused low profit margins; Perishability, high wastage esp in bad weather (rains, hot season) Hygiene and sanitation needs improvement, lack of water facility; Protocols for food safety practices needed; Vendors clamor for market information service; complain of demanding customer Lacks capital	Consumers who go to the secondary and satellite markets are used to the market practices; not too aware of their need for safe foods.
High perishability & wastage esp with weather disturbance or oversupply	Lack of utilities, eg. water for vegetable washing, market cleaning, waste management	Secluded location of some markets leading to low vendor sales		
Conversion of land into non-agricultural uses	Lack of hygiene and sanitary facilities and protocols	In Libertad, informal vendors are not protected during heavy rains		
Lack of market information system		Vendors complain of high prices; high wastage due to perishability		
Logistics, increased costs	Cleanliness & orderliness			
Opportunities				
LGUs and private market operators can be encouraged to partner for initiative in market development planning to address needed improvement from physical infrastructure to waste management; facilitated by the CGIAR-CIP WP2 project.		Capacity of informal vendors can be enhanced through awareness activties and implementation of good vendor practices (GVP) through the CGIAR-CIP WP2 project – the Vendor Business School. Business support services for the identified needs can be clarified, arranged, and facilitated for access.		Consumer consciousness on safe and nutritious food can be improved through LGU-partners work
Stakeholders				
LGUs, traders' organizations, DA, baarangays	LGUs, private market operators, DTI, DA/ KADIWA	LGUs, private market operators, DA/ KADIWA, DTI, TESDA	LGUs, private market operators, DOH, TESDA, barangays	DOH, NGOs, consumers' groups

perform various roles and functions that can be tapped to address the identified challenges and opportunities from production to consumption (Table 11). Hoping for support from city governments and private market authorities, vendors expressed a desire for better selling environments, improved sanitation with adequate water provision for cleaning and washing, proper garbage/waste system, and adequate personal hygiene facilities. Despite the challenges, vendors remain positive and are willing to participate in collective ways of improving their trade but with consideration of the time and labor involved (Table 9).

Vegetable vendors: supply sources, pricing, demand and contribution to income

The Pasay informal vegetable vendors differ from the Quezon City vendors particularly in terms of location. The Pasay informal vendors are located very close to the small formal vegetable section because the *talipapa* (Primero Mayo in barangays 91 and 92) is situated in the block next to the city public market. They are very visible, with full access from the main highway and side streets. To compete well, informal vendors get their vegetables from the same sources that formal vendors use. All of the sample respondents buy vegetables from the wholesale *bagsakan* in Divisoria and from the Wowee night market, just a few hundred meters away, depending on type and price (Table 12).

The Quezon City markets are in more secluded locations, but they are also nearer urban peri-urban vegetable growers who are an additional source of produce. Vendors here mostly source their products from wholesalers and trader-retailers in the nearer Balintawak *bagsakan* market (64-71%). The grower-traders in Quezon City are often linked to vendors in Commonwealth by family relation, forming a network of vendors mostly of greens such as native pechay, spinach, saluyot, kangkong, malunggay, alugbati, and ampalaya leaves, among others (Table 12).

Table 12. Supply sources of vegetables (%) sold by vendors in Pasay and Quezon city markets.

Supply source	Libertad/Primero de Mayo markets, Pasay	Commonwealth market, QC	Kamuning market, QC
Trader-wholesaler	100	14	32
Trader-retailer		71	64
Grower-trader		15	4
Total	100	100	100

With different markets being catered to, the patterns of vegetable demand and preferences differ, affecting sales and income. In Pasay market, which is closer to a number of food businesses linked to tourism, common ingredients of popular dishes such as onion, tomato, garlic, and potato are in increasing demand and contribute highly to sales and income. In Commonwealth where the greens dominate supply, the biggest contributor to sales and income are pechay, eggplant, ampalaya, kangkong, saluyot, camote tops, onion, tomato and garlic. Onion, tomato and garlic, as well as potato, chayote, carrots, and eggplant sell well in Kamuning.

Contribution to income: cost and margins

The vendors in Pasay market reported a net income ranging from PhP 500 to PhP 5500 per day (US$7.5 – 81). In Quezon City, the Commonwealth market vendors reported between PhP 1200 and PhP2000 day (US$18 – 29.5); in Kamuning market, the range was PhP 500-1000/ day (US$7.5 – 15). This reflects the mix of vegetables that are sold daily, which reportedly contribute to a greater share of sales and income; that is, the pattern of purchases in the surveyed markets. Pasay city vendors sell more of the tomatoes, onions, and garlic as well as for-restaurant-use vegetables such as potato, carrots, and pechay. These are common purchases of food establishments and households around the surveyed markets in the Libertad area, a densely populated district where low- to middle-income

families reside. Commonwealth vendors profit more from vegetables mostly used in households and food establishments like pechay, eggplants, tomatoes, onions, garlic, and the greens saluyot, kangkong, and kinchay. Kamuning vendors follow the same pattern as do those in Pasay city, but sellers suffer from their location, as well as from competition with other markets (i.e., secondary and *talipapa)* that are accessible to surrounding residential districts.

Table 13 reveals interesting findings on pricing as affected largely by supply sources. Buying and selling prices are the average of the reported prices during the peak season of the vegetable (meaning a relatively lower price on the average). However, with the limited sample size, this observation needs more in-depth study because of implications related to supply-price dynamics and seasonality as to vegetable type and sources.

Yellow-shaded cells are comparably the lowest prices of commodity across the surveyed markets. Commonwealth vendors have the lowest buying and selling prices for tomato, potato, cabbage, and carrots, which are supplied directly by trader-wholesalers from the north (e.g., Pangasinan, Nueva Vizcaya) during the night market and for okra and ampalaya supplied by peri-urban growers from La Mesa Dam and Bulacan. Kamuning vendors offer the lowest prices for garlic, ginger, pechay (Baguio and native), and chayote, which are sourced from trader-wholesalers in the Balintawak bagsakan market. These show a relatively more efficient vegetable selling in Quezon City markets where the vendors' selling prices are still lower compared with those of Pasay vendors even with price margins of about 50% versus 25–30% in Pasay City. Pasay vendors offer relatively higher prices even with lower margins for garlic, ginger, and pechay; but the best price is for onions with reasonably good margin at 50%. They have a competitive edge on onions, thereby contributing highly to their income. This high price at source

Table 13. Average prices (PhP/kg) and margins (%) of common vegetables contributing to bigger share of sales and income.

Selected vegetable	Pasay City			Commonwealth, QC			Kamuning, QC		
	Buying price	Selling price	Margin	Buying price	Selling price	Margin	Buying price	Selling price	Margin
Onions	40	60	50	55	100	82	90	110	22
Tomato	40	60	50	20	30	50	35	45	28
Garlic	95	110	16	–	–	–	80	90	12
Ginger	55	70	28	45	60	33	35	55	57
Potato	60	80	33	35	45	28	50	60	20
Cabbage	55	75	36	20	30	50	–	–	–
Pechay (Baguio)	80	100	25	30	45	50	20	30	50
Pechay (native)	–	–		60	80	33	40	60	50
Pechay, Chinese	–	–		70	110		–	–	–
Chayote	55	70	27	–	–		20	30	50
Eggplant	80	100	25	20	60		40	60	50
Okra	35	65	86	10	20		60	70	33
Ampalaya	80	100	25	15	30		50	70	40
Baguio beans	–	–		45	60		–	–	–
Carrots	75	90	20	65	80		90	100	11
Lettuce	–	–	–	35	70				
Squash	–	–	–	30	50		50	70	40
Alugbati	–	–	–	25	40		–	–	–
Kangkong/ bdl	70	100	43	65	80		–	–	–
Saluyot	40	60	50	30	50		–	–	–
Malunggay	–	–	–	60	70		–	–	
Kinchay/big bdl	–	–	–	500	600		–	–	
Ampalaya leaves/bdl	–	–	–	120	200		–	–	

could still be covered by demand, with this vendor group located close to a densely populated area. Commonwealth vendors sell the greens at relatively low prices, which are reportedly supplied directly by peri-urban growers.

Challenges and opportunities

The challenges in the supply-market chain of vegetable vendors revolve mainly on production instability (especially with the long chains from the north) brought about by extreme weather events and increasing input costs and logistics, which consequently result in fluctuations in supply and prices. While the long chain market links are established, informal vegetable vendors strive to gain access to smaller secondary night markets like Commonwealth in Quezon City and Wowee in Pasay City, where trader-consolidators from the north and CALABARZON deliver vegetables wholesale, which means cheaper prices and lower logistics. However, facilities in these start-up *bagsakan* markets are largely inadequate: very limited spaces, negligible storage, minimal utilities. They could not handle an expanded trade volume.

On the whole, most markets suffer from similar problems, in various degrees—of poor hygiene and sanitation, lack of water, inadequate garbage disposal, improper waste management, and no real-time market information. Vendors consider these as their own problems too, in addition to high costs and prices, perishability of goods, problematic customers, competition from new entrants and on-line selling, and the need for capital.

Still, informal vegetable vendors are numerous and serve as critical links in the food system. Their contribution to the economy is significant, especially among the lesser endowed urban populace. There are opportunities for intervention to improve their capacities and operations to enable them to be more efficient links and to effectively contribute to the city's resilience. The positive attitude of most vendors and their willingness to participate in development efforts, the progressive and compassionate attitude of city authorities toward the informal sector, and the existence of various urban initiatives for food security and sustainable development with some institutional innovations are strong foundations on which to build a strong and resilient city.

The street food vendors

Savor the streets filled with smoke and aroma from charcoal grills and fryers; mini-stalls with folding eating counters with casseroles of *pares* or *goto*; melting pots of consumers waiting for affordable, convenient, and delicious street food. The iconic Filipino street food in creative names of simply delicious flavors do liven public and private spaces across the streets of Metro Manila and all over the country. A number of street food are animal-based (e.g., chicken and pork meat, chicken parts, eggs); some are native delicacies (e.g., banana/camote cue, *ginataan*), and others are ready-to-cook industrial processed foods (e.g., squid and fish balls, tempura). Street food is also a way of understanding the native food culture and tourists enjoy partaking such treats. They have become popular in night markets till the wee hours of the morning. Street food has become a distinctive food category on its own as evidenced by their popularity in urban areas and the rest of the whole country (Neary 2018, Imatheu 2017, Recio and Gomez 2013, Milgram 2011).

Pork and chicken are the major meat products consumed by about 62–63% of households. Chicken egg is greatly preferred by 82%, but only 2% consume fresh/pasteurized milk (PSA 2017). This consumption pattern and the large visibility of street food in urban spaces lead us to focus on such food from fresh animal-based processed products (e.g., pork and chicken barbecue, *kwek-kwek/ tokneneng* from quail or chicken eggs*)*.

Street food can provide nutritious, low-cost, tasty food, according to some consumers. But street food vendors have not been well-supported, and most lack facilities and proper education (e.g., food storage, adequate water and sanitation, waste collection) to enable them to operate in safe and clean surroundings and to give hygienic services. They provide food not only to low-wage workers and urban poor households, but also, increasingly, to professionals, students, and consumers at higher socioeconomic status.

Street food in Quezon and Pasay cities

There is a huge culture of grilling in Philippine street food and there are very few things Filipinos do not enjoy grilled over charcoal. Usually, pork, chicken, and chicken parts (feet, head, intestines, neck) are marinated, skewered, grilled over charcoal, and basted with a barbecue sauce, then served with seasoned vinegar. Also, fried food is just as popular served with sweet sour or spicy sauce or seasoned vinegar.

Street food in Pasay and Quezon City comprise a diverse selection of animal- and vegetable-based products. Animal products are both processed by the seller as well as sourced from third-party home processors and sold as meals or snacks. There are also native delicacies for snacks and fried products from ready-to-cook industrial processing. (Photo documentation of common street food is presented in Annex 3.) Table 14 summarizes the different street food sold by respondent vendors in the three market areas in Pasay and in Commonwealth and Kamuning markets in Quezon City.

Table 14. Types of street food sold in Pasay and Quezon City.

Pasay City	Commonwealth, QC	Kamuning, QC
Barbecue: pork, chicken and chicken parts, offal	Kwek-kwek, tokneneng	Kwek-kwek
Fried chicken with rice	Pares with variants; siomai	Beef pares with rice, mami
Pares with rice, mami	Hot dogs, longganisa, other cold cuts	Burger
Home-processed meat	Balut and penoy	Fish/squid ball, kikiam
Cuchinta, palitaw, puto	Banana cue, turon, lumpiang togue, carioca	Cuchinta, palitaw, cassava, puto, egg pie, nilupak
	'Dirty ice cream', shake, palamig	Shake, palamig
	Peanuts (boiled and fried, shelled), chicharon	

*English translation/description of local street foods: kwek-kwek, tokneneng – fried quail/chicken egg coated with flour-egg mix; siomai – steamed wrapped ground meat (pork/shrimp) formed into small balls; pares – braised beef stew; mami – noodle soup; longganisa (seasoned sausage); balut and penoy – boiled fertilized duck's egg (14 & 18 days' old); kikiam – industrial product fish flavored; turon –fried wrapped caramelized banana; lumpiang togue – fried wrapped mungbean sprouts with ground pork; banana cue – deep-fried banana pieces; carioca, cuchinta, palitaw, puto nilupak – different rice or rootcrop-based native delicacies, often with coconut; palamig – flavored cooler drinks; chicharon – crispy fried fatty pork cuts.

Animal-based street food. The animal-based street food mainly consist of different kinds of meat (pork, chicken, beef), animal parts (liver, feet, innards, head), and eggs. The most popular meat preparation is barbecue, where the meat and animal parts are usually prepared in different cuts, marinated in soy sauce with vinegar and spices for a few hours at home, and skewered; they are then brought to the selling location for grilling over charcoal upon purchase. Cooked barbecue is served with sauce or vinegar dip. Increasingly popular is serving a filling, tasty meat dish (e.g., beef *pares*) as combo meal (with rice or noodles) at affordable price.

The egg-based street food have gained nationwide popularity like the boiled fertilized egg (*balut* or *penoy*), and the fried boiled chicken (*tokneneng*) and quail (*kwek-kwek*) eggs coated with flour-egg mix. Energy boosters like *lugaw/arroz caldo (*rice porridge with chicken, *siomai, chicharon)* or *goto* and *mami* noodles are main meals by themselves. Homemade processed traditional meat products such as *longganisa, tocino,* and *embutido* are fried and goes well with rice as meal.

Industrial processed food. These are processed meat formulated by food manufacturers that are frozen or vacuum-packed and purchased from supermarkets or grocery retail stores. These include the fish and squid balls, *siomai, kikiam,* and *tempura*; hotdog and cold cuts, and

burgers. These are commonly fried or grilled and eaten as snacks or part of a meal.

Native delicacies. For years, native delicacies have always been important snack food for all ages. Commonly mentioned by respondents are the popular banana and camote cue and *turon (*fried wrapped banana*)*; flour or rootcrop-based formulations like *cuchinta, palitaw,* and *carioca*; and home-made ice cream, shake, or *palamig (*juice coolers).

Profile and characteristics of street food vendors

The street food vendors interviewed for this assessment are currently residents of Pasay and Quezon City, with just under half having migrated during the 1980-1990 period from the Cordillera region (Abra), Bicol (Camarines Norte), and East Visayas (Leyte). They have a history of family members being engaged in food or street food businesses. Originally, they belonged to tenant farming families, but the low productivity of unsecured farms pushed them to migrate to Metro Manila. Some are lucky enough to have the business and location handed down from a street food vendor employer or from direct relatives. On the average, the street food vendors have been in business for 15-20 years, a significant length of time that implies that the business is good enough to financially support and sustain them. A balance of women and men are engaged in street food selling. Most of the snacks and native delicacies are handled by women, whereas meat-based street food are mostly handled by men, especially *pares, balut/penoy,* and *kwek-kwek*. Eight out of 10 vendors reported that street food vending is their main source of income; the rest have other income sources like driving, contribution from family members, and other micro-business enterprises (Table 15). Two have multiple street food stands.

Customers consist of walk-in buyers (for both individual and household food), market goers, loyal or *suki* workers (construction workers, drivers, students, market staff) and employees of shops and offices nearby (Table 16). The continued construction activities during the

Table 15. Profile of street food vendors.

Characteristic	Quezon City, n=6	Pasay City, n=4
Place/ethnic origin	Leyte, Abra (East Visayas, CAR) Caloocan, Quezon city (NCR)	Leyte, Camarines Norte (East Visayas, Bicol) Pasay, Caloocan (NCR)
Years in business	5-30 years	10-20 years
Type of business	Individual, household	Individual, household
Gender of main seller	Female 43% Male 57%	Female = 50% Male = 50%
Sources of income	Main source of income, other street food vending stand Driver, helps in capital	Street food business is main source

Table 16. Street food vendors: business location, challenges and outlook.

	Quezon City	Pasay City
Customers/buyers	Walk-in buyers, market goers, individuals & households nearby *Suki* workers/employees (loyal customers within the market)	Walk-in buyers, household (meal) *Suki* workers and market employees (loyal customers)
Arrangements for location	File application with manager (market adm.) Secured with "padrino" or boss	Receive barangay permission for street corner, talipapa Administration permission for market corner, public market
Challenges	Sometimes, low sales Increased cost of inputs Customers' unable to pay credit Lack of capital Rainy, inclement weather	Sometimes, low sales Increased cost of inputs Lack of capital
Business outlook	Business is promising, want to continue; customers are satisfied with taste and price	Business is good; customers are satisfied with taste and price
Willingness to be trained	Positive Day/time to be considered	Positive Day/time to be considered
Willingness to work with others	Positive; prefers capital assistance more for facility improvement and expansion; activities that improve income	Positive
Support from LGU on business during pandemic	Some got support from LGU during the pandemic	None
Help in business	Hired help Mostly helped by family members	Hired help Family members
Business during the pandemic	Lockdown, could not do business	When permitted, business strong; households find difficulty getting food ingredients from far markets

pandemic, especially in Pasay and Quezon City (e.g., condotels, skyways) created markets for street food. Barbecue stands and *pares* (beef stew with rice or noodles) stalls were activated. The all-time favorite, barbecue, and its variants increased in number and patronage . *Pares* has become increasingly popular, even attracting better-off 'drive-in' customers. Some prefer the higher priced variant with cow's brain and eye, which reportedly has thicker and uniquely flavorful taste. The price is 80% higher than *pares* with plain rice (at PhP 50/serving, US$0.91), 20% higher than *pares* with mami (at PhP 75/serving, US$1.40).

There is sustained demand for all types of street food, especially *kwek-kwek* (quail's eggs), grilled or fried cold hotdogs, cuts and ready-to-fry industrial foods like fish/squid balls and *tempura*, native delicacies, home-prepared ice cream, and cold beverages. Consumers prefer ingredients to be fresh and they like natural ingredients such as *ube* (yam) ice cream from fresh tuber, not using powder or food color. Vendors are actually very positive with lockdown restrictions being lifted during the pandemic, and business is up again.

Vendors who are located within the main market premises get permits from the market inspector, do not pay rent, but are not given permanent stalls. They are allowed to sell only at certain times: 8:00 am to 1:00 pm usually for meal servings (e.g., fried chicken) or 4:00-8:00 pm (e.g., barbecues, fried eatables), or during daytime for snack food and beverages. Those who locate in the *talipapa*, street corners, or sidewalks get permission from the barangay, subject to the barangay's directives, like clean-fixing their paraphernalia and doing proper garbage disposal. There may be unofficial concessions to secure a location; no payments but some tokens of gratitude like sharing some of the food sold (e.g., a few sticks of barbecue). *Utang na loob* ("debt of gratitude") is a strong Filipino value, which finds its way in business, especially for favors that redound to security of location.

Restrictions during the pandemic, as well as the public consciousness about viral spread through food took a toll on the street food vendors. Opening a business, even with the permit to operate, was still slow. Only this year, with vaccinations in full swing, did business start to pick up. However, some reported good business, especially those who cater to construction workers, are in open markets, and located in corners of dense residential areas. Some even increased sales as many households chose to buy already prepared food to limit their market trips. Government cash assistance during the pandemic was mainly for food sustenance, but some were able to allocate part of this for capital. In Quezon City, two vendors were able to access livelihood capital support. Vendors needed capital assistance to improve their facilities (e.g., stalls, bench, stove, utensils, packaging) and maintain a working fund. With spirits up, they maintained a positive attitude, deciding to continue with street food vending and expressing willingness to participate in training or development initiatives, but with careful consideration of time so as not to disrupt business.

Supply chain

With limited capital, input supplies for the different kinds of street food are mainly sourced from retail stores, small grocers in the open market, and bakeries (e.g., burger pattie, flour, yeast) in small quantities. Some long-established vendors could have direct access to delivery vans (e.g., fresh chicken) of integrators like SMFI/Magnolia and could get better prices. Also, buying cooking oil in containers (e.g., gallon, can) lessens the cost, even though it requires more capital. Barbecue vendors of pork, chicken, and parts buy from the nearby open markets daily to ensure freshness. Vendors are aware that freshness of inputs is important for food quality, but their containers and utilities still have a lot

of room for improvement. None of the vendors interviewed for this assessment sourced from their own production of meat or other ingredients, which could have lessened expenses or could have improved product quality. Given the limited sample size, this issue needs further study.

The street food vendors' decisionmaking seems straightforward: applying experience and learned skills to deal with a manageable volume of sales (with one or two sellers/workers for a certain small capital investment). This business "micro-world" is their sphere of operation: near the place of work or residence of consumers who purchase small quantities. Most vendors are concerned primarily with the level of demand and the profit they can make, rather than improving the nutrient content of food, recycling, safe use of additives (e.g., food coloring), or applying safety and quality procedures for processing. For example, vendors reported re-using frying oil up to three times (based on smell and clearness of used oil), although they do use a brand of cooking oil that is preferred by customers. Re-use of oil can adversely affect taste (Muinde and Kuria 2005). The interviews and observations suggest that current street food can be further improved in terms of product quality andcost effectiveness. These, together with greater knowledge and sound practices, contribute to a more resilient food system.

Unlike the vegetable vendors who are entrenched in both long or short supply-market chains due to the diverse production systems of the commodities, the street food vendors usually deal with short chains, from input suppliers to immediate consumers. But the challenges are more on the processing chain node as in the efficient sourcing of ingredients, improving product quality (e.g., choice of ingredient, nutrient enrichment, processing techniques), and considering food safety, hygiene and sanitation, and proper waste utilization. These are areas for interventions that form the essential part in a capacity development program. Vendors also talk of assistance in product promotion, which can be integrated into modules on building business skills that include financial literacy, merchandising, and market expansion along with other business strategies.

The ongoing and planned urban development programs of existing institutional stakeholders can be leveraged to address the needs of the vendors. They are into health and nutrition programs (LGU-DSWD-DOH), business and skills training (DTI, TESDA), livelihood support (LGU, DOLE/PESO, cooperatives), urban gardening (LGUs/barangays, private foundations), and policy advocacy for sustainable development (LGUs and partner GOs, civil society) (Table 17). The array of needed business development support can be negotiated and facilitated with these agencies that are also in the process of finding ways to better collaborate and implement their respective mandates.

Contribution to income; costs and margins

Vendors' incomes depend on the kind and volume of goods sold, which depend on capitalization and markets. Meat-based barbecues (pork, chicken and parts), fried products (hotdogs, *longganisa, tocino,* chicken, eatables), and meal preparations (simple combo like *pares)* earn the most. On average, the range of net income of meat-based food products per day is PhP 1000-4000 (US$18.20-72.70); fried eatables (fish/squid balls, *kikiam*), PhP 1000-1500 (US$9.10-27.30); and native delicacies and drinks, PhP 500-1000 (US$9.10-18.20). Those with relatively less daily earnings find other supplemental income sources.

Challenges and opportunities

Street food is patronized and preferred by many because it is more accessible and cheaper than food offered even in small restaurants, logically due to its very low

Table 17. Summative supply and market chains of the informal street food vending.

Supply	Own processing and selling	Consumption
Meat ingredients: wet markets, supply vans, shops/groceries	Barbecue various types, fried chicken, pares, mami, goto, longganisa, tocino, embutido, mami, burger	Walk-in buyers and market goers: individuals & households; *Suki buyers*/loyal customers; Construction workers, drivers, shop/ market/ office employees; including professionals Students Orders, on-line (try-out) started during lockdown
Eggs: markets, grocery	Kwek-kwek, tokneneng, balut, penoy	
Native delicacies: retail store, markets, home processors	Cuchinta, palitaw, puto, nilupak, turon, carioca. Banana cue	
Industrial processed products: groceries/ shops/retail stores	Fish/squid balls, kikiam, siomai, hotdog, cold cuts	
Rice, flour, vegetables, noodles, other ingredients: markets, retail store	Dirty ice cream, shake, palamig, egg pie, lumpia,	
Peanuts, banana, cassava: vendors in market	Boiled or fried peanuts, cuchinta, other cassava products	
Challenges		
Sourcing of inputs/ ingredients are mostly from retail stores in markets or nearby homes, which are relatively higher in cost than in wholesale markets or direct sources	Risks in food safety (e.g. water quality, improper handling, adulteration, contamination) and unhygienic environments in processing, selling, and cleaning of utensils	Lacks awareness of nutrition of street food and food safety; availability and convenience outweighs safety and nutrition in food choices away from home
Opportunities		
Interventions could be negotiated with appropriate business support service (e.g. LGU, DOLE, PESO) to secure working capital for volume buying of ingredients/cheaper sources; (i.e. even smaller volumes, not in sachets or retail packs)	Capacity building of vendors: business skill, processing for more nutritions, safe and hygienic food; quality food; standard and sanitary operations; positive attitude/ Vendors willing to be trained	Consumer education and nutrition awareness linked with vendors capacity building activities (e.g. promotion of nutrient-enhanced food)
STAKEHOLDERS		
Department of Trade and Industry, City government, cooperative/ associations	CG-CIP WP2, City government, DA-ATI, DOLE/PESO, TESDA	Foundations, NGO, Department of Health, cooperative/ associations
City governments have existing partnerships with different stakeholders Implementing development initiatives on food security, livelihoods, sustainable development, on which interventions through the CGIAR-CIP WP2 project can be anchored.		

overhead cost. They provide convenient meals to workers and households, especially those with time and budget constraints. These benefits, however, are matched with issues of food safety (e.g., preparation, improper use of additives or colorants, food contaminants and adulterants, unsafe water use) and non-hygienic environments (e.g., personal hygiene of preparer and vendor, working environment, selling location). Thus, while street food vendors benefit consumers in terms of convenience and economy, consumers also need to have their health and well-being protected. Health offices of city government have standard and safety operations and practices (SSOP) training module for food handlers that still needs to be extensively implemented, especially for street food vendors who may not yet be in the radar for such training.

Opportunities for improvement are made feasible by the openness of the street vendors for any initiative to improve their trade in terms of the risks and issues raised. They are willing to be involved in initiatives like technical assistance and capacity building, yet they stress that access to capital is a major concern. Engagements should also consider their time since only about 50% have ready help from family members.

Capacity development and learning needs

Informal food vendors were found not to have much concrete knowledge of the nutrient content of vegetables or the street food sold. They consider themselves as simply sellers of "delicious, tasty, and nutritious" food and they maintain that vegetables are nutritious. They are not concerned with further productive use of vegetable and food wastes. Street food vendors are not aware, for example, that simple addition of rootcrops in *lumpia*, native delicacies, or juice coolers adds nutrient value. The awareness is more about freshness and price (for vegetables) and taste (for street food). The use of plastic packaging is all over the place and plastic is used as gloves. Vendors are also responsible for the large amount of plastic waste generated.

The vegetable vendors prefer to know more about supply sources and the related prices, as they are, on the whole, price takers. They would only be able to

negotiate prices if they were dealing with a *suki* (i.e., with a long-standing seller-buyer relation that could leverage prices or credit). But, at present, they are not able to influence price based on market supply and price information. This is a potentially viable service that the city market administration could provide: information on supply and prices in digital real time. This would be an improvement over what is currently being done by the Department of Trade and Industry, where prices are posted on market boards/ walls during the day, but with time lags. The required information can be posted digitally and be made accessible in primary and secondary *bagsakan* night markets in real time. The mobile phone is currently the ubiquitous communication medium and would be the most appropriate tool to get price information.

The needs of street food vendors focused more on product promotion and possibilities of financial assistance to improve *in situ* product processing, display, and hygiene of stall facilities. All vendors are interested in any opportunity to be trained that can improve their trade, even a willingness to work with others. Their available time for training is an important consideration. They would have wanted to improve their selling facilities, but this requires funding support and technical assistance to come up with cost-effective stall design like those for barbecue and *pares*. Most have a positive attitude toward building skills, and most likely the mind-setting exercises can be integrated into the educative process.

In common with the general urban population in these cities, informal vendors are not yet particularly concerned with reducing plastic packaging, ensuring trash collection, and focusing on the safety and hygiene aspects of their marketing facilities. Some street food vendors use both paper and plastic packs in sales. The awareness is there, but the consciousness to put it in daily practice is lacking. They need knowledge and skills so they can evaluate the risks to consumers, the environment, and society if such practices are not used in the immediate, short, and long run.

Governance of informal food markets

Earlier literature and reports pointed out concerns of regulators about informal vending, such as the competition and loss of business it poses for formal (registered) retailers, congestion and disorder in the streets, potential for increased crime (especially in areas of dense informal trading), loss of tourism, and spread of diseases (Giroux et al. 2021, Roever and Skinner 2016). This explains the negative view of the informal sector, resulting in an ambiguous relationship between authorities and this sector. The enforcement of anti-vending laws further strained the relationship; cities could not consistently support and enforce food safety and public health regulations due to limited resources. The general approach maintained is that of regulation and control, and evidence shows that such repressive tactics are not effective (Giroux et al. 2021, Skinner et al. 2018, Evans 2017). The vendors' knowledge and performance of proper hygiene and health practices vary. In addition, they are not always able to comply with laws due to cost (e.g., required medical examinations) or low availability of services (e.g., infrastructure for laboratory tests). Scholars and practitioners have encouraged government authorities to recognize the important role that informal vendors play in local food security and to include informal vendors in food system planning for cities: to find ways of engaging with the informal food sector that will secure access to safe and nutritious food by the urban population (UNDP 2021, UNHSP 2017, FAO 2016).

In recent decades, Quezon City and Pasay fostered initiatives more clearly geared toward improvements in the marketing infrastructure and operations (including informal vendors); promoting a holistic approach toward resilient

food security and livelihood; integrated urban development, and continuous efforts to comply with economic dynamism, government efficiency, infrastructure improvements, and resiliency in compliance to national and local government pronouncements; as evidenced by the recognition awards these cities received for these efforts. While many steps are in their early achievement phase, sustaining them will require more conversations to assess and learn to further improve iterative planning, implementation, and monitoring. Some noteworthy steps taken by these two cities, which are still being negotiated and refined, include the following:

Pasay City

(a) Improvement in market administration and operation; employee welfare
Passage of the Market Code in Pasay that clarifies different market actors with the end of defining the market players that the city can focus on. Administration and operation of the city public market are hands-on through locating two offices: one for the market administrator and staff (8-hour office for supervision, logistics, and monitoring) and the other, a 24/7 operations office for operational functions including utilities, cleanliness and order, waste management, security, etc. Providing lodging barracks at the 2nd floor of the city public market is a welfare approach for market employees to ensure better take-home pay by reducing living expenses at work, where lodgers are largely dependent on street food vendors.

(b) Benchmarking for further improved market operations, currently ongoing locally and abroad;

(c) Searching for appropriate areas to locate informal market vendors;

(d) Inclusion of informal vendors in multipurpose market associations;

(e) Recognition by city officials of the important role of informal vendors, particularly in food security and livelihood, especially among the urban poor; this is suggestive of a compassionate stand on the informal players; and

(f) Openness and positivity about collaboration with external expertise, including the CGIAR Resilient Cities Initiative in discussing results and potential interventions, particularly on capacity development of informal vendors. The City Mayor's Office has collaboration with TESDA on training for skills building, or certification; similar collaboration could be done with the Resilient Cities Initiative; training facilities and resource support can be arranged. The Office is also open for discussions of other progressive options for the informal sector.

Quezon City

(a) Passed the Informal Sector ordinance in 2016 defining the informal economy and the informal market sector that becomes the framework for further regulatory measure and their inclusion in city planning and programming;

(b) Provided legislation and guidance for the registration of hawkers that facilitates the process of the informal sector's regularization; and thus access to the city's development support services in livelihood, capital buildup, and other support services.

(c) Stepped up the programming of improvements in the city public markets' physical infrastructure, making market public spaces convenient and

comfortable to both sellers and consumers/shoppers, including the appropriate location of informal vendors. The latest to be launched and that had groundbreaking in mid-2022 is Kamuning public market.

Both cities have initiatives on:

(a) *Solid waste management* for the collection and disposal of market trash and waste, household/ residential and commercial/ industrial wastes. The exact nature and effective utilization of waste management systems will need further elaboration and is beyond this study. However, the assessment points to the existence of a waste management system that has potential for bio-recycling that supports the other components of integrated urban development programs like urban and peri-urban farm systems.

The Pasay City example is a case in point where bio-conditioners from the materials recovery facility (MRF) are plowed back for use in barangay or community gardens for free. A significant part of these is market wastes (coming from12 primary/ secondary markets in Pasay City, 38 secondary markets in Quezon City, and 41 satellite markets or *talipapa*).

(b) *Urban agriculture*- an important component of urban development planning; both cities are the first pilot sites of the urban agriculture initiatives in the 1990s.

Pasay City's solid waste management is conceived to be linked to its community or barangay gardens. However, this still needs further assessment and planning for a more integrated and effective system.

To promote urban agriculture, Quezon City approved in October 2020 an ordinance exempting idle lands from Idle Land Tax if they are used for urban agriculture for a minimum period of 3 years. It collaborates with the Department of Agriculture in promoting and establishing urban community gardens under the food security and livelihood program toward a more sustainable development of the city. Currently, a drive for expansion is under way with the establishment of a 7-hectare urban farm, launched in collaboration with the Department of Agriculture that mainly provides foundation seeds, technical assistance, and training.

Governance is key: that is, building a common understanding of the roles of the national and local governments in agricultural development and food governance. Highlighted during the pandemic are the significant roles of both the informal food sector as effective food distribution links to urban and households and urban agriculture as own-food source in short supply chains. This needs further serious consideration for urban development planners in search of food security, livelihood, and sustainable development. The local governments, as exemplified by Quezon City and Pasay, are best suited for collaborative food governance that will enable local trade facilitation and value addition. They have the ability to mobilize local resources and make a rapid response in promoting suitable innovations. City authorities will need to fully understand the critical role of the informal market sector in food security, in urban agrifood value chains, in the generation of livelihoods and incomes; and urban resilience on the whole (Evans 2019, Roever and Skinner 2016, Roever 2014).

These observations can best take forward the Resilient Cities Initiative to establish collaborative partnerships with the two pilot cities for improving the informal food markets through capacity development. Such approach aims mainly to improve their capacities and mindsets,

business skills and practices, enabling them to deal with related trading issues on food safety, hygiene and sanitation, nutrient knowledge for trade and value addition, waste/trash recycling and use, and access to business development support services. Importantly, in-depth consciousness of their role in food and nutrition security and sustainable socioeconomic development of the respective cities needs to be ingrained. As to implementation, LGU partners should have a common understanding with the project that the target resiliency criterion cannot be effectively achieved alone but in partnership with all relevant agrifood system actors and development partners, including consumer and civil society groups that play a role in the transformation of the food system.

The informal food sector: insights for ways forward

Key emerging issues

The significant findings and emerging issues addressed in this rapid assessment study relate to the LGUs and the informal food markets. These are summarized in the following:

- Enhanced governance initiatives to improve food market systems include improvements in market administration (e.g., market monitoring, security, employees' welfare) and operations (e.g., physical infrastructure/facility improvements, and benchmarking for better location of vendors), and enabling policy environments (e.g., regulatory ordinances, own-produce marketing promotions). Informal vendors are being recognized by including them to become members of market cooperatives and associations.
- Integration of food security and livelihood, climate-smart initiatives, urban agriculture, etc. has become an advocacy and approach in urban development programs. This is significantly relevant to the Resilient Cities Initiative and contributes to resilient urban agrifood systems. This indirectly improves the security of food chain of the informal vendors through greater feasibility in developing short vegetable supply chains of lowland tropical vegetables, as well as improved distribution and consumption links.
- Collaborative partnership of government agencies with the private sector, civil society, and international organizations has increasingly become a strategy for effective development work within an environmental context (i.e., urban agriculture, solid waste management. food and livelihood security), including but not limited to improved food market system objectives.
- Informal food vendors are well integrated into urban food systems, but this integration is only beginning to be visible to planners, decisionmakers, and policymakers; the latter may need technical assistance and policy advice –resilient cities project potential for partnership. Transformative policies like the Pasay and Quezon City ordinances should be reviewed and further improved in order to change the perspective that informal vendors are a public 'nuisance' and to positively harness their positive contribution to resilient urban areas.
- Informal food vendors significantly contribute to urban food security, livelihood, and income generation, especially among the low-to middle-income populace. Thus, there is an overarching need to enhance their enterprise capacities to improve business skills, expand their consumer base, improve their ability to sell and promote, facilitate access to capital to improve vending facilities, and

inculcate safety and hygiene among vendors, among others. These increase the likelihood of greater contribution to secure livelihoods and resilient urban agrifood systems.

Common local government responses

The pilot cities maintain a compassionate stance toward the informal food sector, clearly recognizing its role in food provision, employment, livelihood and income generation. Steps have been taken for their formalization—facilitative registration, inclusion in the formation of market association or cooperative, tolerance for coexistence in business with formal stall owners, and planning for relocation to an improved market facility. But further details of effective operation need to be clearly laid out.
There are also recent initiatives of integrating marketing in the urban food security and livelihood program as an extension or as improvements of local marketing initiatives with the DA-KADIWA food supply provision during the pandemic. The feasibility for realistic improvement of the sector depends on the specifics of each strategy.

Relocation

Location specificity could be critical with informal vending having diverse conditions to effectively operate. It is important to assess the spatial aspects of food distribution and access to help ensure the viability of vendors' location and help ensure food access by the poor households (Giroux et al. 2021). Vendor-specific types of intervention considering linkages with suppliers and consumers and critical conditions like hygiene and sanitation practices, food quality standards, and waste/garbage disposal are non-negotiable. Safety, hygienic selling environment, and security can be significantly enhanced by making available areas for informal trade, including shelter, areas for sorting and packing, and storage and ensuring good water supply for cleaning and sanitary practices. Personal care and childcare facilities are additional considerations as women are largely part of this sector. Locating informal food vendors with other informal commodity sellers in one single market facility or informal food vendors taken as a group and relocating them would likely leave many households less food secure. This does not consider the spatial aspects of food distribution and access and removes certain food chain nodes that low-income and less food-secure households rely on.

Also, relocating them in places away from the concentration of their markets will negatively affect the viability of their business. Understanding of how location affects food access and business relationships is needed by local governments and urban planners to plan the relocation of informal vendors to improve their physical market conditions (Skinner et al. 2018).

Regularization

The regularization of the informal food sector is already under way through a local ordinance that facilitates the registration of hawkers at the Quezon City Hall.
While Pasay City is still thinking of ways to formally recognize and support the informal sector, it has started the process of benchmarking. Authorities may need to consider the constraints that this process may present to the informal vendors. The current procedure of the barangay giving permission to informal vendors to operate in *talipapa* or street corners may need to be assessed in terms of operability. A consultative process may be facilitated with the informal vendors for a win-win strategy. This may be difficult but could help improve efficiency in terms of the number and spatial location of the vendors and the greater likelihood of establishing an amenable food system (Giroux et al. 2021).

The case of Singapore on formalizing the informal vendors in the 1960s provides useful insights. This is a benchmark case

when Singapore was still a developing city-state (Ghani 2011). By area, Singapore is about the same size as Manila; yet Metro Manila currently is a robust consumer market; the latter, three times more populated. Metro Manila has more global street food types comparable with Singapore than the traditional-food types of other Asian cities.

About 40,000 hawkers selling food and other low-cost goods and services were active in the streets and along the Singapore River. Serious food safety and environmental issues then haunted authorities. A licensing and inspection scheme was introduced with a main strategy of relocating vendors to hawker centers: 54 centers built in the late 1970s and an additional 59 in the early 1980s. After which, in the next decade, a "regulate and educate" policy was phased in to improve hygiene practices. The centers were increasingly recognized in their role as important community elements for social interaction. In 2001, a huge investment was done (US$420 M) for the hawker centers' upgrading: largely infrastructure improvements complete with needed facilities and equipment (e.g., freezers, cleaning areas); and improvements were continuous to accommodate additional hawkers (2014: additional 6,000 vendors). They continue to be favorite places and have loyal customers, an attraction to tourists (Tefft et al. 2017). Note that Singapore is a city-state as big as Metro Manila, but only about 20% as populous. Thus, more urban poor benefit from food provisioning and livelihood. Further, tourists can serve as additional markets for more viable informal enterprises.

A case where a city with similarities to Metro Manila successfully dealt with regularization of the food system in a participatory way through stakeholder engagement is Bangkok (Boosabong 2019).

Market infrastructure and marketing and related support services

The pilot cities have included improvements in market physical infrastructure and facilities (including waste management) in their market development programs. Pasay is challenged due to its already congested public market space, whereas Quezon City still has a bigger land area. In both, however, proximity to residential areas via affordable transport routes can be an issue. Installing store kiosks in strategic accessible public spaces like parks, public markets and offices, or terminals can be more feasible for the informal vendors like the Quezon City pilot project, (i.e., selling in kiosks made of tents near the city hall and park).

The facilities and utilities of street food vendors can benefit from improved access to financing their food stands/stalls, with technical assistance on design. A few vendors reported getting minimal financial support. But this needs to be done in a more systematic basis. Marketing and promotions assistance will need to be more rationalized and linked to seasonal supply or production patterns of vegetables and consumer perspective of street food.

Proposed alternative strategies

Capacity strengthening of the informal food vendors

To increase the effectiveness of their contribution to resilient cities, the assessment has indicated that the informal food vendors can benefit from strengthening of their enterprise skills, consciousness and practice of food safety, hygiene and sanitation, nutrient knowledge of raw and processed foods, waste recycling and use, regulatory policies and a broad understanding of the agrifood systems. On the whole, capacity strengthening improves livelihoods of vendors and contributes to the efficiency of the food marketing-consumption

system, especially serving the low-income urban population. Building partnerships with the city governments and other relevant stakeholders to implement this capacity strengthening is key.

The informal food vendors (both vegetables and street food) identified very similar key capacity strengthening and learning needs in order to improve their business capability. These needs include:

- Business/enterprise skills, which include entrepreneurship consciousness, micro-scale selling and merchandising techniques, sorting and packaging, basic financial literacy, sanitation and hygiene practices, supply and sales monitoring, among others
- Enhancing product knowledge (e.g., quality standards, nutrition) to improve product nutrition and contribute to nutritious diet of urban consumers
- Access to market information and assistance and supply information for cost- effective operations
- Developing/improving the consumer base through product promotion and other means
- Improved skills in accessing financial assistance

For capacity development of informal food vendors in pilot cities, the CIP-developed manual and learning guide, "Farmer Business School with Gender and Climate Change Perspective" (FBS-GCC), will be revised to fit the learning needs of informal vendors. Developed as the Vendor Business School (VBS), it will have a similar agrifood system perspective with gender and climate change. Critically relevant issues (food safety, hygiene and sanitation, food and nutrition, etc.) surrounding the vendors' contribution to Resilient Cities Initiative will be integrated. The information gathered from interviews with vendors and officials and direct observations are the inputs to the revision of the FBS-GCC manual and learning guide.

The FBS-GCC is a community-based business cycle-long participatory learning that builds enterprise skills among farmers as they interact with market chain actors. The curriculum adopts a value chain framework that could have a perspective similar to that of agrifood systems. The FBS-GCC has been adopted in the IFAD-funded project with the DA-Bureau of Fisheries and Aquatic Resources into the Aqua-based Business School with Gender and Climate Change (ABS-GCC) perspective and as Value Chain Business School (VBS) in India CIP-World Bank APART potato project.

Improved integration and support of informal vendors in business associations

Engaging vendors under a supportive environment can be done by encouraging them to join business associations where they can have a voice. Specifics can follow from a consultative process where vendors can effectively communicate their needs, constraints and aspirations, and negotiate for solutions. Business organizations are venues where vendors can continuously improve, learn, and innovate with and from other members or mentors. They can negotiate more strongly as a group to pursue plans or push for some solutions and can better leverage for technical or financial assistance or other support services (FAO 2007). In the Philippines, organizations can better access assistance or are preferred beneficiaries for support services.

Partnership and specificity of approach

Partnership for transformative change is essential. Local authorities should consider that, formally, vendors lack an institutional partner with whom they can negotiate for their rights and responsibilities, and they may not understand regulations. No agency has the monopoly of knowledge, expertise, and operational adequacy to plan and implement a complex urban development for resilience program across

time and spatial dimensions. Giroux et al. (2021) note spatial differences and vendors' and consumers' needs in cities; thus, a one-size-fits-all approach for integration of informal vendors into the food system is less likely to be successful in terms of economic development, household food security, and urban resilience.

LGU partnership with government and non-government agencies, private sector, and civil society is gaining ground. Involving informal vendors in a relevant consultative process will give them a voice and participation in understanding their challenges and finding feasible solutions. They lack institutional partners with whom they can negotiate for their needs as well as make them understand regulations and responsibilities. Participatory consultation with vendors (e.g., issues of relocation and registration of businesses) can be facilitated. It may be difficult but it could be done with determination.

Conclusions

The ever-growing body of literature toward understanding component systems aimed at resilient cities is rich and multi-faceted, engaging various disciplines, levels, and tools of analyses, perspectives, and approaches. The boundaries can be so seamless that the suggested integrative approach, at times, seems difficult to manage. A clear broad framework, some guides and toolkits for analyses should be useful and forthcoming from various international organizations (FAO 2020, Skinner et al. 2018, WB and FAO 2017, ADB 2014). Focusing on a subsystem can be a pragmatic strategy to deal with the complexity without losing the whole conceptual framework to put in context the interconnectedness.

The current perspective of the urban agrifood system focuses on improving the efficiency of the informal food markets and harnessing its huge potential to enhance food and nutrition security, in other words, food resilience. Thus, the nature of analysis and trend of discussion center on an assessment of the informal food markets, both the spaces themselves and also the key actors in those markets, informal vegetable vendors, street food vendors, and those responsible for the management of the markets.

Some conclusions may be made about the informal food markets:

- Local governments need to accept the current reality that almost half of all employment is informal in urban Asia (ILO 2018) and a large part of that urban employment is related to wholesale and retail food vending (FAO 2007). The markets where food vendors operate are very important economic and social spaces, which often have infrastructure and organizational problems that market managers are trying to address, but with major challenges where they need support.
- Informal food markets, like the vegetable and street food markets, are increasingly significant parts of the urban agrifood system characterized by a) diversity in supply-market chains (e.g., long and short chains) in terms of structure, conditions, and relationships that are specific to the respective location and commodity; and b) lack of visibility and voice in policy formulation and implementation and social development programs.
- Informal food vendors are key links between multiple food production locations and consumers in all types of markets (i.e., primary, secondary, satellite), and food vending is a source of livelihood and income for many actors across the food system, especially benefiting the urban poor.
- Informal food vendors need to be viewed as assets of the urban food system and included in

urban dialogue, planning, and policymaking. This will require authorities to proactively consult with vendors and search for holistic approaches in understanding the sector and crafting strategies for their improved operations and contribution to the local economy.

- Governance is key in helping the informal food sector effectively contribute to resilient urban food systems to enhance their roles in food provisioning and livelihood and income generation. Thus, the Resilient City project initiative advocates for proactive collaborative partnership with local governments, market managers, and other relevant stakeholders with a clear understanding of the nature and dynamics of the urban food system.

Though the proposed intervention phase from this assessment by the Resilient Cities team will be focused on food vendor capacity strengthening, there are many other issues that have emerged that need to be addressed to strengthen food marketing and the food systems in the target cities. These include infrastructure improvement, organic waste management, better understanding of food flows and market chain dynamics, food policy analysis, and formulation and implementation of integrated urban agrifood system development. These may be taken up in future collaborative actions between city governments and Resilient Cities.

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Annexes

Annex 1. Field work activity schedule

Date	Activity	Particulars/ Key persons interviewed
First field work		
3 July: 4:00 PM	Arrival Manila	
5:30–9:00	Meeting with ATI Director, Ana Mula, Arma Bertuso, Julie Roa	Points/issues discussed: Status of DA-ATI director under new leadership; not clear, work as usual; courtesy resignation of previous administration appointments as of July 31. ATI director committed to support Phase 1 – rapid diagnostics part – of the project; including field support staff and facilitation of UA field visits, meetings and discussions with UAP key officials.
4 July 5:00–11:00 AM	Libertad Market, Pasay City public market	Reconnaissance survey/informal interview of market officials and vegetable vendors.
	Primero de Mayo Uno Talipapa	Informal interviews of vegetable vendors; 6 pax
	Wowee Market (bagsakan at night; retail by day)	Informal interviews of fruit and vegetable vendors; 2 pax
2:30–5:00 PM	MEGA Q Mart, EDSA Quezon City; Private market	Wholesale of fruits and vegetables at the back side of the market Retailers and Q Mart grocery are in the middle section. Dry goods sellers are in front along EDSA
5:00–5:30	CARTIMAR	Market closed at 1:00 PM. Security guard information: bagsakan night market from midnight to early morning; deliveries to orders of suki are done from early morning to about 12:00 noon.
5 July 8:30 AM–1:00 PM	Visits to community and urban gardens: community and schools	Bgy. Holy Spirit Community Garden: Interview with Mr. Wally Canque and team of vegetable grower-traders from Benguet
		San Diego Elementary School Vegetable Garden and Rooftop Café: 171 teacherss, ca. 4000 pupils
		Commonwealth High School Garden: 10,000 students, 320 teachers
		Balara Elementary School Garden: 4000 pupils, 120 teachers
1:45–2:15 PM	Meeting with field work assistants	Orientation meeting with field assistants to conduct key informant interviews; instrument provided
	Meeting with DA-urban agriculture program team	FGD with the DA urban agriculture program team: ATI – Director Ana Mula with 2 staff; BPI UAP/Director HVCC – Glenn Panganiban with 3 HVCC/BPI staff; AMAS- Ramon Niedra

Date	Activity	Particulars/ Key persons interviewed
6 July 10:00 PM to 6:00 AM	Night market visits/ interviews	Padre Rada-Divisoria: interviewed bgy tanod market-in-charge; Camote wholesale trader; vegetable vendors Commonwealth Market, Quezon City; interviewed 5 vendors; 1 market staff; 1 stall owner
7 July 1:30-4:00 PM	Training at the ATI Director's office	5 ATI staff to conduct key informant interviews in Pasay and Quezon City markets with ATI director. KIIs include vendors (fixed stall owners, ambulant vendors, talipapa vendors, street food vendors). Deadline July 25; meeting as necessary
Second field work		
1 August	Arrival; mid-AM Meeting at ATI, up to 3:30	Status and updates with ATI on the conduct of the KII; collected completed instruments; others not present; rescheduled another meeting on the 3rd
	Pasay, PM and Cartimar, evening	Reconnaissance street food vending; interviewed 2 street food vendors (barbecue pork, chicken and parts; pares); Cartimar reconnaissance
2 August	Libertad public market and talipapa	Review visits to vegetable vendors and market administrator for FGD schedule with Pasay city officials; interviewed 2 street food vendors (fried chicken meal; 2 stalls of 1 owner)
	PM	VSU office; review of secondary data/information and materials; related literature
3 August	AM Pasay city hall	Focus group discussion with 7 city hall officials led by the chief of staff; included city planning office, administrative staff, market official, city environment resources office
	PM	Scheduled visit to Cavite, bgy Tanza etc peri-urban farms cancelled due to conflict schedule with the contracted vehicle Continue review of materials at VSU office.
4 August	AM Quezon city hall	Discussion with the Sustainable Development Affairs Unit (SDAU) chief and aide: integrated food security and livelihood program of the city
	PM ATI-DA office	Meeting with ATI director and KII field staff; submission of completed instruments; request for additional KII from Kamuning market
7 August	6:00 AM	Back to Leyte
Up to August 16	Field work, ATI staff; intermittent	KII of vendors (vegetables and street food) at Kamuning market; follow-up of gaps
Up to September	Intermittent schedule	Secondary data/information, related materials and literature review; data processing, analysis, organization Report writing

Note: Includes Activities 1, 2 and 3 of deliverables. A report was submitted for Activity 1. Current report is the deliverable for Activities 2 and 3; but includes the whole of rapid assessment of informal food vendors, including the highlights of Activity 1.

A. Food vendors (fixed or mobile)

Name: ____________ Market location: ______________ Type: __________________

Vegetables/ eggs	Year started selling	Sources (check who from & supply area)	Volume/ week (kg); variations in seasonality		Buying price (Php/ kg)		Selling price (PhP/kg)		Any classification of veggies/eggs, and differences in price?	What can you say about the volume of traded veggies/eggs (specific) last year? Before pandemic by how much? What could be the reason?
		a. trader/W b. trader/R c. grower/farmer d. grower-trader	Lean mo.	Peak mo.	Lean mo.	Peak mo.	Lean	Peak	Grades and prices	Volume now is: H, higher ( ) L, Lower ( ) Than last year; before pandemic. Pls give reason(s)

Selling status and prospects, practices, needs

- Who are your buyers? From where? Do they have preferred vegetables; specific varieties/cultivars preferred? Other preference specs

- Which of the veggies currently sold have the biggest contribution to sales income? Any variations in sales? If so, why? Which veggies/eggs can be improved in quantify of sales, pricing? How? (e.g. quality, packaging, variety selection, etc.)

- Which among the veggies/eggs have shown increasing demand now? in the future? Why?

- Which among the veggies/eggs have shown decreasing demand now? in the future? Why?

- What are the problems in selling veggies/eggs?

- What would you like to be doing differently next year? in 3 years' time?

- How has the pandemic affected your selling? Did you get support?

- Are you willing to work with others to improve veggie vending/marketing? How do you think can this be done? What is your possible role?

- What types of support services do you need in improving your business?

  Market information _____ Selling/business skills _____

  Supply info/ links _____ Utilities, water/cleaning _____ ; Water/drinking _____

  Promotional support _____ Waste disposal _____

  Packaging _____ Lighting _____

  Selling/business skils _____ Others _____

- Do you have other household income sources? How big is the contribution of your vending veggies/eggs?

- Are there other household members helping? In which work do they help? (supply contact, preparation for selling, selling, etc.). Is help regular, occasional, seasonal, etc.?

- How did you get your vending location? Arrangement type? Local requirements? What is the status? How is this secured?

Cost & returns (specify period: week, month, etc.) _____

Items	Cost	Particulars
Veggies sold		Per veggie; quantity & price
Labor		
Handling		
Packaging		
Utilities		
Other items (as applicable)		
Depreciation		
Interest		
Income:		
		Per veggie quantity & price
Net income:		

Annex 2. Key informant interview guide for informal food vendors

CIP WP2 Urban Initiative

Guide for Key informant interview and FGD for vendors

July–August, 2022

Rapid market appraisal for vegetables and processed street food

The RMA is done in selected Metro Manila markets at different types and levels as to the relevant supply chain (i.e., pref short chain) of the food street vendors to get a whole set of information/data specified in the data/information guide. If selling mixed vegetables, choose the main commodity with the highest contribution to sales or income.

Guide A is the interview guide for vendors/sellers. Guide B is used for street food vendors (i.e. banana cue, bbq of chicken parts, port meat, chorizo, etc.) while Guide C is done with related supplier to the vendor, who can be a local grower/gardener/farmer (urban, peri-urban).

Name of key informant: _____

Date of interview: _____

Place of origin: _____

Observation/thumbnail sketch

[Write down briefly observation on the physical facilities/infrastructure around the selling area; any issues, events that are relevant to selling. Also, briefly describe the circumstances or conditions during the interview; including disturbances around the environment affecting the interview].

B. Street food vendors (processed food)

Name: _____ Location: _____

Information on processed products

Street food (own processed)	Average volume / daily, week	Raw material supply source (own, direct growers/farmers, retail stores, etc.	Purchase price /kg (main ingredient)	Average volume of raw material/month	Product selling price/ pack(s)	Vending location (fixed, mobile, etc.)	Arrangement; how location is secured

Selling status and prospects, practices, needs

- Who are your buyers? From where? What are their preference specs?

- Which of the street food currently sold have the biggest contribution to sales income? Any variations in sales? If so, why? Which can be improved in quantify of sales, pricing? How? (e.g. quality, packaging, variety selection etc.)

- Which among the street food have shown increasing demand now? in the future? Why?

- Which among the street food have shown decreasing demand now? in the future? Why?

- What are the problems in selling street food?

- What would you like to be doing differently next year? in 3 years' time?

- How has the pandemic affected your selling? Did you get support?

- Are you willing to work with others to improve street food vending? How do you think can this be done? What is your possible role?

- What types of support services do you need in improving your business?

  Market information _____ Selling/business skills _____

  Supply info/ links _____ Utilities, water/cleaning _____; Water/drinking_____

  Promotional support _____ Waste disposal _____

  Packaging _____ Lighting _____

  Selling/business skils _____ Others _____

- Do you have other household income sources? How big is the contribution of your vending street food?

- Are there other household members helping? In which work do they help? (supply contact, preparation for selling, selling etc). Is help regular, occasional, seasonal, etc.?

- How did you get your vending location? Arrangement type? Local requirements? What is the status? How is this secured?

Cost & returns (specify period: week, month, etc.) _____

Item	Cost	Particulars
Street food sold		Per food; quantity & price
Labor		
Handling		
Packaging		
Utilities		
Other items (as applicable)		
Depreciation		
Interest		
Income:		
		Per veggie; quantity & price
Net income:		

Annex 3. Common street food sold in study sites

The types of street food shown are those sold by key informant vendors in the study sites. These are barbeque products and beef pares in Pasay City, the fried chicken combo meal and snack foods in Pasay market. Photos of other street food were added as examples.

A. Meat-based

1. Barbecue: grilled pork and chicken meat, and chicken parts



(a) Mixed barbecue stand on a bicycle along the street of Pasay City. Most of the customers are workers in department stores and residents living in this street



(b) Pork barbecue

Inset: uncooked pork and chicken parts: 1 – pork meat, 2 – pork liver, 3 - pork -cheeks, 4 – pork coagulated blood, Betamax, 5- chicken gizzard, 6 – chicken intestines, IUD, 7 – chicken head – Walkman

2. Meat-based: fried—chicken meat and parts, hotdog and other processed food



(c) Fried food such as fish balls, squid balls, kikiam and kwek-kwek common in many stands

(d) Cooked squid ball, kikiam and kwek-kwek (small, quail's eggs) are dipped in sweet or spicy dip/sauce.



(e) Fried chicken and rice meal at Pasay market

3. Meat-based: soup



(a) Beef pares stand in Pasay (1) with rice combo; (2) with mami (noodles) combo



4. Non-meat-based



(a) Pasay public market: *white cheese, puto, suman, bibingka, cassava cake, sapin-sapin, leche flan* and others



(b) Primero de Mayo public market: *ube puto, biko, bibingka, cassava cake, sapin-sapin, kutsinta* and others





(c) Banana and sweet potato fried snacks

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