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RESEARCH  
PAPER

# Informal food vendors and their role in the food and nutrition security of low-income workers in Bandung City, Indonesia



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# ACRONYMS AND ABBREVIATIONS

CSFS	Centre for Sustainable Food Studies, Padjadjaran University
DDS	Dietary diversity score
GPS	Global positioning system
IDR	Indonesian rupiah
kcal	Kilocalories
MDD-W	Minimum dietary diversity in women of reproductive age
MSG	Monosodium glutamate
PKL	<i>pedagang kaki lima</i> (PKL, street vendor)
PT	<i>Perseroan Terbatas</i> (limited company, as in PT Kahatex)
RDA	Recommended dietary allowance
RT	<i>rukun tetangga</i> (neighbourhood association)
RW	<i>rukun warga</i> (community association)
SME	Small and medium-sized enterprise

Exchange rate at time of field research in 2015: 1USD = IDR 14,200

# SUMMARY

In common with many rapidly growing cities in Southeast Asia, street vendors have a contested place in the growth of Bandung and present city authorities with regulatory challenges. Policy responses show both hostility to and cohabitation with street vendors. They include restricting the presence of vendors to certain streets through zoning, relocating and formalising vending via vendor centres and food festival events. These reflect mixed objectives of tackling traffic congestion, improving order, and attracting tourists to the city.

The role of street vendors and informal food provision in urban food security and the food system of the working poor has largely been overlooked. This research, conducted in two parts, set out to fill that gap. The first part explored the nature of street vending in Bandung from a qualitative survey of vendors and their customers in three districts of the city. The second part focused more empirically on the role of street and informal vendors in the food and nutrition security of low-income residents, specifically young women textile factory workers.

A 2015 census recorded over 22,000 street vendors in Bandung City, 55% of whom sell food and beverages. We can categorise food vendors into four broad categories: main meals (either full menu with mixed meals, or single dishes); beverages; and snacks/sweets. Full menu mixed meals gave the highest gross sales, but also required more capital and involved higher risk.

The study found two quite distinct categories of street food consumers: the recreational/leisure consumer and the subsistence consumer. The recreational consumer purchases food from street vendors once or twice a week, spending quite a large amount per visit. The subsistence consumer, on the other hand, uses street vendors as their main food source – 50 to 80% of their total food intake – and spend IDR10,000 to IDR15,000 (USD0.7-1.0) per visit.

This central place of street vendors in the food security of the working poor was uncovered in research carried out among 300 female mainly migrant textile factory workers around the large PT Kahatex textile factory at the western edge of the city. The women themselves were involved in data collection, using seven-day food diaries and 24-hour recall. The research showed that food stalls or *warung* are generally the most important source of nutrition for the workers; static and mobile street vendors were also important. The surveyed workers had a high dietary diversity.

A one-size-fits-all policy for street vendors may fail to take the different roles of vendors and informal provision into consideration, especially their part in the food system of the working poor who underpin the city's economy. Workers' food and nutrition security may be affected negatively by relocation policies. Evidence is key to supporting a more disaggregated approach to the informal food system. Policies can then be adjusted to the realities and benefits of informal and semi-formal provisioning that build on flexibility and advantages of informality, while minimising risks to consumers and urban governance. Evidence is still largely brought into policy processes by experts. However if vendors and workers can generate evidence themselves, there is the potential to advocate directly around their priorities, and be less dependent on others to set the agenda.

# INTRODUCTION

This research is part of a process of evidence generation to help protect and improve the food systems of the urban poor in the city of Bandung, in a period of rapid urbanisation and modernisation. It focuses on the role of street food vendors and informal food providers, who have a contested place in the city's growth. The research set out to better understand: (1) the place of street and informal vending in the city's food system; and specifically (2) the role of different food outlets in the food and nutrition security of (mainly migrant) low-income female workers in Bandung's factory area. It

was conducted by the Centre for Sustainable Food Studies (CSFS) of Padjadjaran University, in collaboration with IIED and Hivos. The structure of this document is as follows: in Section 1 we provide some background on Bandung's informal food system; in Section 2, we provide an overview of the informal street vendors and their consumers; in Section 3 we focus on the role of informal food vendors in providing food access to female factory workers; and Section 4 presents the conclusions and recommendations.

# 1. INFORMAL STREET FOOD VENDORS IN BANDUNG'S FOOD SYSTEM

## 1.1 Background

Indonesia is one of the most urbanised countries in Southeast Asia. Its share of urban dwellers grew from 15% in 1960 to over 55% in 2017, when the total population reached 264 million. This migration to urban areas is caused in part by steady economic growth, but also inequality in rural land holdings, and a national development policy that is biased towards urban areas and prioritises industry (Rachbini and Hamid, 1994; Todaro and Stilkind, 1991). Urbanisation has been accompanied by quite rapid economic restructuring, including a shift out of agriculture, which has seen a drop in contribution to GDP from 45% in 1970 to 14% in 2014 (Rothenberg *et al.*, 2016). Informality is persistent in Indonesia where it accounts for around two-thirds of employment and 93% of enterprises (*ibid.*).

In West Java, 60% of low-income families live in urban areas (Statistics Indonesia, 2015). Official statistics put the level of poverty in major Indonesian cities at between 5 and 10% of the population, with Bandung the lowest at 4.8% (Statistics Indonesia, 2014). But with the national poverty line set at less than a dollar per day – well below the World Bank international reference of USD1.90 per day – these statistics do not give a full reflection of urban cash scarcity.

When it comes to food security, being poor in an urban environment makes people more vulnerable than in a rural area. Informal food vendors are an important food source in developing countries' urban areas (Benson *et al.*, 2014), and Indonesia is no exception. For poor urban families, the availability of affordable food is crucial to their wellbeing and associated food security. Yet, despite this important contribution to food provision and income for the urban poor, street vendors are often marginalised within urban governance. Policies and plans for urban modernisation and public order have often put municipal authorities on a collision course with street vending. Informal vending is seen as an undesirable activity, and is considered an eyesore by

municipal authorities. The dominant approach in Indonesian cities has been to apply disincentives (Permana *et al.*, 2016). In many cases, city authorities have forcibly evicted or relocated street vendors in the name of urban order and cleanliness. Vendors are often subject to harassment and extortion, including from organised crime (Felbab-Brown, 2013; Paskarina *et al.*, 2017).

Some progressive municipal authorities in Indonesia have tried a more collaborative approach, via engagement, relocation, and training, as well as incorporating street vending into strategies to promote gastro-tourism. Examples include Surakarta (Sj-Sumarto, 2009), Yogyakarta in central Java (Gibbins, 2017), and Jakarta where the then governor Joko Widodo applied his *blusukan* approach of direct involvement with people on the ground, that had met with success in his previous role of mayor of Surakarta. These collaborative approaches may however break down and revert to hostilities when cleared areas are recolonised by vendors (Taylor and Song, 2016).

In Bandung in West Java, the city has, since 2011, taken a zoning approach to forbidding or restricting street vendors in some city streets to improve traffic flow and civic order. It is recognised, however, that street vendors contribute to a vibrant gastro-tourism sector in the city.

## 1.2 Street vendors in Bandung

Bandung's informal sector, especially its street vendors, grew rapidly during the employment collapse that came with the economic crisis of the late 1990s. The sector is an important part of the urban economy since it has proven a life support for the poor, especially during economic crises, by providing affordable food and fulfilling people's daily needs (Rachbini and Hamid, 1994; Kusakabe, 2006). These vendors are known locally as *pedagang kaki lima* (PKL). Bandung City Regulation No. 04/2011 defines a street vendor as "a vendor who carries out informal business/retail/trading, operating at a public facility, either in an open and/

or closed space, using a moving or stationary cart” (Bandung City Government, 2011).

Data on the street vendor population in Bandung vary from year to year, partly due to inconsistent data recording. In 2013, the city government carried out its most comprehensive census and data collection on street vendors, covering all 36 sub-districts in Bandung City. The census recorded 20,326 street vendors in the city, 55% selling food and beverages and the remaining 45% selling non-food products. A similar survey in 2014-2015 saw a growth to 22,359 street vendors (Bandung City Government, 2018).

In 2013, Astanaanyar sub-district in Bandung had the highest population of street vendors with 2,001 traders, or 18% of the total. In this densely populated area close to Bandung’s old downtown shopping block, street vending has a history going back to the 1970s. The sub-district includes the Grand Mosque (Masjid Raya) and surrounding shopping areas. In 2014, the city moved the street vendors to relocation areas in the Grand Mosque basement car park, Tegalega Park and sports complex, or out to Gedebage Market in the city’s eastern suburbs.

The second largest concentration of street vendors is in the adjacent sub-district of Regol (1,688 vendors in 2013), which hosts the Kebon Kalapa shopping mall and Tegalega Park and sports complex. Non-food vendors dominate in this area, representing 64% of traders. Vendors here have created an informal market on the street for consumers entering the downtown area, shopping mall and recreation park from the south side of the city.

Other sub-districts with high concentrations of street vendors are Bandung Wetan (1,392 vendors) and Kiaracondong (1,031 vendors). These two sub-districts are centres of business and trading for construction, housing supplies, machinery, electronics, and retail for the eastern side of the city. There are no public parks or open spaces in these areas, so street vendors mostly occupy the pedestrian footway, parking spaces and roads. Street vendors are concentrated in the same space as formal businesses – all four sub-districts are busy trading, business and shopping areas. This shows that in a city context, formal and informal activities are interconnected and support one another. Lower level employees and formal business workers are both consumers at informal businesses in the same location. Some

consumers on tight budgets divide their spending between formal and informal businesses.

### 1.3 Bandung street vending policy

The growing number of street vendors in Bandung City has created a dilemma for the city authorities. On one hand, the Asian economic crisis showed that an informal economy helps the poor to survive in hard times. However, on the other hand, after the crisis subsided, the number of street vendors continued to grow and occupy many streets and public spaces, creating traffic congestion and a perceived threat to public order and sanitation.

Approaches to food vendors have ranged from restrictive to permissive. The initial approach, starting in 2005, focused squarely on disincentives. City Regulation No. 11/2005, which was designed to improve the city’s orderliness, cleanliness and beauty, required seven city locations to be free of street vendors, and included a provision against setting up a stall and selling on a footway, park or green belt. It was clear that in 2005 the city authorities saw street vendors as nothing more than a problem for the city with no potential to contribute to urban development. However, removing and relocating street vendors had little success. Most of the vendors returned to the street in a few weeks, playing hide-and-seek with officials.

In early 2011, the city government adopted a more permissive approach, combining restriction with incentives and capacity building. City Regulation No. 4/2011 demonstrates an important improvement in the way the city sees the phenomenon of street vendors in urban areas. It contains several important provisions. First, it defines street vendors, and what they can and cannot do. Second, it sets up a special task force responsible for assisting and monitoring the regulation’s implementation. Task force members come from various city departments that deal with street vendor issues, including those overseeing cooperatives and SMEs, tourism, sanitation and public order. The third provision of the 2011 regulation divides the city into three types of zone for street vending – red, yellow, and green. In red zones, street vendors, whether permanent or mobile, are not allowed to operate; here streets should be free of street vendors at all times. Red zones are areas around religious buildings (mosques, churches, etc), military complexes, most of the main roads



crossing the city (17 national roads and 28 provincial roads), as well as seven main business locations. In a yellow zone, street vendors may only operate at certain locations and/or certain times. This includes areas surrounding a traditional market (wet market) where street vendors may operate on the road and footway from 10pm to 6am. Some areas, such as in front of city offices, sports facilities and other public service facilities, may be used by street food vendors at night from 5pm to 4am. In a green zone, street vendors are allowed to operate at any time. These green zones are set up as relocation areas for street vendors, or as a traditional market, thematic culinary/market area or festival market; they include the basement car park of the Grand Mosque and Gedebage main market.

The fourth and final provision of the 2011 regulation requires street vendors to be registered. All street vendors relocated to a green zone are mandated to register and are given a permit for one year. The permit for the location can be extended, but is not transferable to somebody else. If a vendor has a permit but is found operating in a red zone and given three warnings in nine months, their permit will be suspended, or in some cases revoked.

The 2011 regulation does not only apply to street vendors, but also to the consumers who buy from them. Consumers who are found buying from street vendors in a red zone, or yellow zone outside the restricted time or place, will be charged IDR1,000,000 (around USD68). Those who cannot afford to pay the penalty (based on presented evidence) within three days will be convicted of committing a minor criminal act and charged in instalments of IDR200,000. Billboard signs and posters are on prominent display to remind the public about the penalty. The 2011 legislation was applied more strictly from 2014 to reduce congestion and to prepare for the 60th anniversary of the Asia Africa Conference in April 2015.

In September 2015, the Bandung city government set up a street vendor forum at sub-district level in the city, with the objective of reconciling the differing interests of street vendors, government and the community. But by October 2018, the head of the city's office for Cooperatives and SMEs stated that only around 5,000 of the city's 22,000 street vendors were "well organized and managed" (Rosadi, 2018).

## 2. PROFILES OF VENDORS AND THEIR CUSTOMERS

### 2.1 Street vendor profiles

In 2015, we conducted an exploratory qualitative study to understand the street vendors' profiles, their customers, and the value chain of the food they sell. We selected three street vendor locations in Bandung: the *Mesjid Agung* (Grand Mosque) basement car park area in central Bandung (green zone, relocated from red zone around the mosque on ground level); Tegalega Park close to the sports complex (yellow zone); and the Gempol Sari area close to the PT Kahatex textile factory at the western edge of the city (red zone). Each case study location was selected to represent street vendors in a different type of area: those selling in a relocation area; those close to residential areas; and those close to an urban industrial area. Table 1 gives a comparison of the three locations in terms of operation times, target consumers and zoning categories.

At each location, we interviewed three street vendors and three consumers, a representative of the local authority (*lurah* or *rukun warga*),<sup>1</sup> and the street vendors' association leader. We also interviewed the city government: the offices of Cooperatives and SMEs; Social Welfare; Planning, Agriculture and Food Security; and the police (Satpol PP). In total, we interviewed 27 people between 31 August and 30 September 2015.

#### Categories of street vendor food on offer

Initially, we divided street vendor food into three categories: main meals; beverages/drinks; and snacks/sweets. From field observation and in-depth interviews, we found that the main meal category was too broad and included too wide a range of prices. So we divided main meal vendors into two categories, each with a different price range: full menu mixed meals with a variety of meat and fish; and single menu vendors who focus on only one dish, with or without

Table 1. Vendor locations observed

	Observation location in Bandung		
	Basement car park of the Grand Mosque	Tegalega Park, close to the sports complex	Around PT Kahatex textile factory
Street vendor operating times	9am-9pm	6am-11am	6am-12am
Consumers	Visitors to Alun-Alun park Shoppers Shop and office workers	Residents of Tegalega area Users of sports arena and recreation area at Tegalega	PT Kahatex factory workers (24 hours) over four work shifts
Zone	Green zone: street vending permitted at any time	Yellow zone: street vending permitted at certain times/ places	Red zone: no street vending permitted at any time on certain streets
Type of location	Relocation area	Relocation area. Close to low to medium-income residential areas	Close to urban industrial area

<sup>1</sup> Lurah: administrative head of the kelurahan, the lowest level of urban administration; rukun warga: local community association.

meat or fish (Table 2). A small additional category – fresh ingredients – was defined after further more in-depth research in the PT Kahatex textile factory location; fresh ingredient vendors were also surveyed in this exploratory work – see Section 3.2.

Of the four categories, full menu mixed meals give the highest gross sales, but also require more capital and involve higher risk. Street vendors selling full menu main meals earn a net margin of IDR510,000 to IDR800,000 a day with

52-67% value added. From our interviews, we understand that only street vendors with five to ten years' experience can run this type of business. New entry street vendors in the main meal category tend to start by selling single dish main meals. Street vendors of single dish main meals earn a lower net margin, at IDR120,000 to IDR230,000 per day, with 32-49% value added. Thus the single dish food vendor can be categorised as lower budget, but adds moderate value, which is good for business. It requires less skill and presents

Table 2. Street food categories: daily costs and profits

Description	Street food category			
	Main meals		Beverages	Snacks/sweets
Street food category	Full menu, mixed meals with meat: rice and meat with vegetables, mixed rice, fish barbecue, etc	Single dish, with or without meat: <i>gado-gado</i> , fried rice, fried noodles, meatball noodle soup, etc	All types of drink, from homemade (hot/ cold) to bottled drinks	Mainly homemade, such as traditional finger food ( <i>jajanan pasar</i> ), <i>rujak</i>
Input cost excluding labour (IDR)	855,000-1,030,000	275,000-330,000	250,000-400,000	90,000-200,000
Labour cost (IDR)	125,000-150,000	100,000-125,000	100,000-125,000	75,000-100,000
Transport cost and fees (IDR)	10,000-20,000	5,000-15,000	10,000-15,000	10,000-15,000
Total cost (IDR)	990,000-1,200,000	380,000-470,000	360,000-540,000	175,000-315,000
Gross sales (IDR)	1,500,000-2,000,000	500,000-700,000	500,000-750,000	250,000-500,000
Net daily profit (IDR)	510,000-800,000	120,000-230,000	140,000-210,000	75,000-185,000
Value added	52-67%	32-49%	39-40%	43-59%
Family labour	Married couple buys food ingredients, prepares food and cooks	Married couple buys food ingredients, prepares food and cooks	Married couple buys and prepares drinks, sometimes children help as well	Married couple buys food ingredients, prepares food and cooks
External labour	2 people	None	1 person, mainly for transport	None
Share of women's participation	30-50%	50%	30-50%	30-50%

Source: Field interviews in 2015



Relocated street vendors, Bandung Grand Mosque underground car park  
(Photo: Kemal Jufri/Panos for Hivos)

a lower risk. However, from the comparison of costs and benefits above, single menu meals are also quite profitable.

On the other hand, snacks and sweets offer the lowest profits for the vendor. Snack/sweet street vendors earn a net margin of IDR75,000 to IDR185,000 per day, the lowest of the food categories. However, these businesses create higher value added at 43-59% – making them more attractive given the low capital outlay required to run the business on the street. Interestingly, one vendor insisted that he sells snacks/sweet food because he is continuing the family business. According to him, this is the only business his family has known for a generation; he intends to continue even though he understands that it is becoming less profitable. The same argument came from vendors of other kinds of food. From the high cost required, vendors of beverages achieve relatively lower net margins and only create 39-40% value added.

Generally, the street vendors we interviewed were not aware of or did not have a full understanding of food health and safety. Only one street vendor had attended a food safety seminar by the Office of Cooperatives and SMEs in the previous year. The main health and safety problems observed were: 1) repeated use of old cooking oil; 2) unhygienic facilities for cleaning eating utensils; and 3) poor waste disposal.

We found street vendors who had been affected by the relocation programme in two of our case study locations: the Grand Mosque basement car park and Tegalega Park. At the time of this research there had been no relocations at the third case study location, around the Kahatex factory.

Street vendors at Tegalega Park, a yellow zone, were relocated from the inside to the outside of the park, which limited time for selling from 6am to midday every day except Monday when the general area is cleaned. The street vendors complained that the policy has kept changing from one mayor to another. They observed that the policy was getting stricter, limiting their scope of activities, and they claimed that their gross sales had dropped by between 10 and 30% because of the time restrictions.

Street vendors in the Grand Mosque basement were originally on the street and parks around the mosque and shops downtown in Bandung City. When those areas were designated as red zones, the only alternative locations vendors were given were the underground car park next to the mosque, or Gedebage Market on the outskirts of the city. Relocation has had a major impact on vendors. The underground area is dark, hot, polluted by vehicle exhaust fumes, and poorly signposted. The vendors' leader in the basement location said there had been almost 5,000 vendors in the downtown area, and only about 1,000 vendors agreed to relocate to the basement. The remaining vendors chose to relocate to Gedebage Market, or look for an alley in the downtown area to sell from, against city regulations. The vendors complained that as a result of relocating to the underground location, they lost 30 to 60% of their regular gross sales. The first three months after relocation saw the largest drop in sales. Some vendors could not accept the loss and moved away from the relocation area. However, after six months, sales were reported to be improving, though not returning to previous levels.

Interestingly, we also found new vendors in the Grand Mosque basement car park who were not part of the relocation. When we interviewed vendors at the site, one new vendor who previously worked at a restaurant in Bali had opened two stalls in the basement. Based on a quick assessment of the basement area, we estimated that about 50% of the vendors were new (ie not relocated from above ground).

### Vendor supply chains/networks

Street vendors buy their supplies from traditional markets nearby. All the street vendors we interviewed purchased their ingredients to prepare food and beverages from the Astanaanyar market, the largest traditional retail market in the city's central area, and other smaller markets closer to their residential areas. None purchased directly from nearby villages in rural areas or the central market (see Table 3).

Street vendors mostly use fresh and perishable ingredients (estimated by the interviewed vendors at 60-80% of raw materials). Most vendors do not have large cold storage facilities, so they have to buy ingredients every day. Since they buy ingredients in relatively small quantities, it is most efficient to buy from local traditional retail markets. They buy dry materials weekly due to limited capital and storage space. None of the vendors bought stock on a monthly basis.

Street vendors selling beverages use the least amount of raw materials and internal inputs compared to the other categories, since they mostly sell ready-to-drink beverages such as sodas (Coca Cola, Fanta, etc), bottled water and bottled tea drinks. Only a few vendors sell traditional drinks, such as *es cendol*, *goyobod*, *es campur*, and *es serut*.

Table 3. Street vendors' ingredients

Description	Food groups			
	Main food		Beverages/drinks	Snacks/sweets
Type of food group	Full menu, mixed meals with meat: rice and meat with vegetables; mixed rice; fish barbecue, etc	Single dish, with or without meat: <i>gado-gado</i> ; fried rice; fried noodle; meatball noodle soup, etc	All types of drink, from homemade (hot/cold) to bottled drinks	Mainly homemade, such as traditional finger food ( <i>jajanan pasar</i> ), <i>rujak</i>
Source of ingredients	Local traditional market: Astanaanyar	Local traditional markets: Astanaanyar, Rencong, Pola Cijerah	Local traditional market: Astanaanyar	Local traditional market: Astanaanyar
Ingredients purchased daily	Perishable goods: vegetables; eggs; <i>tempeh</i> ; tofu; meat; chicken; fish; meatballs; spices	Perishable goods: vegetables; eggs; <i>tempeh</i> ; tofu; meat; chicken; fish; meatballs; spices	<ul style="list-style-type: none"> <li>Perishable goods: ginger; sugar; ice cubes; coconut milk; <i>cingcau</i>, etc</li> <li>Drinks in bottle/can/pack</li> </ul>	Perishable goods: coconut milk; cassava; banana leaves; vegetables; spices
Ingredients purchased weekly	Dry goods: rice; sticky rice; dry noodles; flour	Dry goods: rice; sticky rice; dry noodles; flour	Dry goods: sugar; soy beans	Dry goods: sugar; flour

## 2.2 Street food consumer profiles

Street vendors are an important part of food consumption in Bandung City. Bandung consumers are heterogeneous, with a wide range of incomes and different levels of reliance on street food. Based on our interviews and field observations, especially from the three case study locations, we grouped street food consumers into two categories: the recreational/leisure consumer and the subsistence consumer (Table 4).

The first group of consumers purchase food from street vendors for recreational or leisure purposes. They go out to buy food on the street in order to enjoy something different to their usual home-cooked food. In Bandung City there are plenty of popular (even legendary) street food locations known for their variety and good food. The interviews found that this type of consumer eats street food once or twice a week. Since these are relatively special occasions and the idea is to find something different, they spend quite a

large amount, from IDR50,000 to IDR300,000 (for one to six people) per visit.

With its cool temperatures and pleasant surroundings, Bandung is an ideal place to eat out on the street. Since colonial times it has been customary for local residents to eat out with family and friends. Bandung City is popular nationally and internationally as a tourist destination for gastronomy and fashion. During weekends and holidays, the city is usually flooded with tourists.

In response, the city government has created thematic weekend food festivals at several locations in the city. The mayor of Bandung at the time of this research, Ridwan Kamil, has supported food festivals in every sub-district of the city as part of the relocation programme for street vendors from the red zone areas.

Table 4. Street vendor consumer characteristics

Indicators	Consumer type	
	Recreational/leisure	Subsistence
Consumer characteristics	Street vendor meals as recreation and a change from homemade food	Street vendor as an everyday food provider
Frequency of food purchases from street vendors	1-2 times a week	Every day, 2-3 times
Average spend on food per visit to street vendor (IDR)	50,000-300,000	10,000-30,000
Share of total food spending spent on street vendors	10-30%	50-80%
Reason for buying from street vendors as opposed to other food providers	Plenty of choice, some famous for good food at a relatively affordable price	Practical, easy to access, a lot of choice, relatively affordable price
Response to health and safety concerns	Due to some concerns, consumers are selective and do not eat street food too often	Consumers try to be selective and only buy from known vendors





Street vendors as a leisure destination. University district, Bandung.  
Photo: ©Kemal Jufri/Panos for Hivos

The second – and less visible – group of consumers use informal food providers as their main source of food. Some people do so because of limiting conditions, such as lack of time to cook, or lack of space or access to cooking facilities, or limited cash reserves because they are paid by the day. This leaves them reliant on commercial food providers, such as *warung* (food stalls) and street vendors. We will see in Section 3 how people who come to work in Bandung from outside the city and rent a small room without cooking

facilities have to rely on food from outside. Among the food providers available, street vendors are considered the most affordable, practical, and varied. This type of consumer eats street food two to three times a day, spending IDR10,000 to IDR15,000 per visit. Street vendors have become the main food source for this second type of consumer; interviewed consumers estimated it at 50-80% of their total food intake. Thus the nutrition and safety of street food have important implications for these subsistence consumers.

# 3. THE ROLE OF STREET VENDORS IN THE FOOD AND NUTRITION SECURITY OF LOW-INCOME WORKERS

We now take a more in-depth look at subsistence consumers and their link to informal food provision. Low-income workers form the backbone of the city's economy, and their food and nutrition security may be affected negatively by a policy of vendor clearance and/or relocation. Our study focuses on women textile workers in the PT Kahatex textile factory in Gempol Sari, an area of Bandung City which, as reported in Section 2, has been designated as a red zone with vending prohibited along the main route running in front of the Kahatex factory.

In the last 20 years, women's participation in the workforce in Indonesia has been increasing very rapidly in line with economic growth, although opportunities for women are dominated by low-paid jobs, such as factory work. The wages of female workers are lower than male workers, while their working hours and daily needs are almost the same.

Low wages affect female workers' ability to meet their own nutritional needs. Research in 2007 by Aziza (2008) found that the prevalence of anaemia in women of reproductive age in Jakarta, Indonesia was 28% – and among women workers, the prevalence was 30 to 40%. The study also found that 15% of women workers suffered from chronic energy and protein deficiency.

Research among female factory workers in other Asian countries also serves as the basis for this research in Indonesia. In Bangladesh, Sultana *et al.* (2014) showed

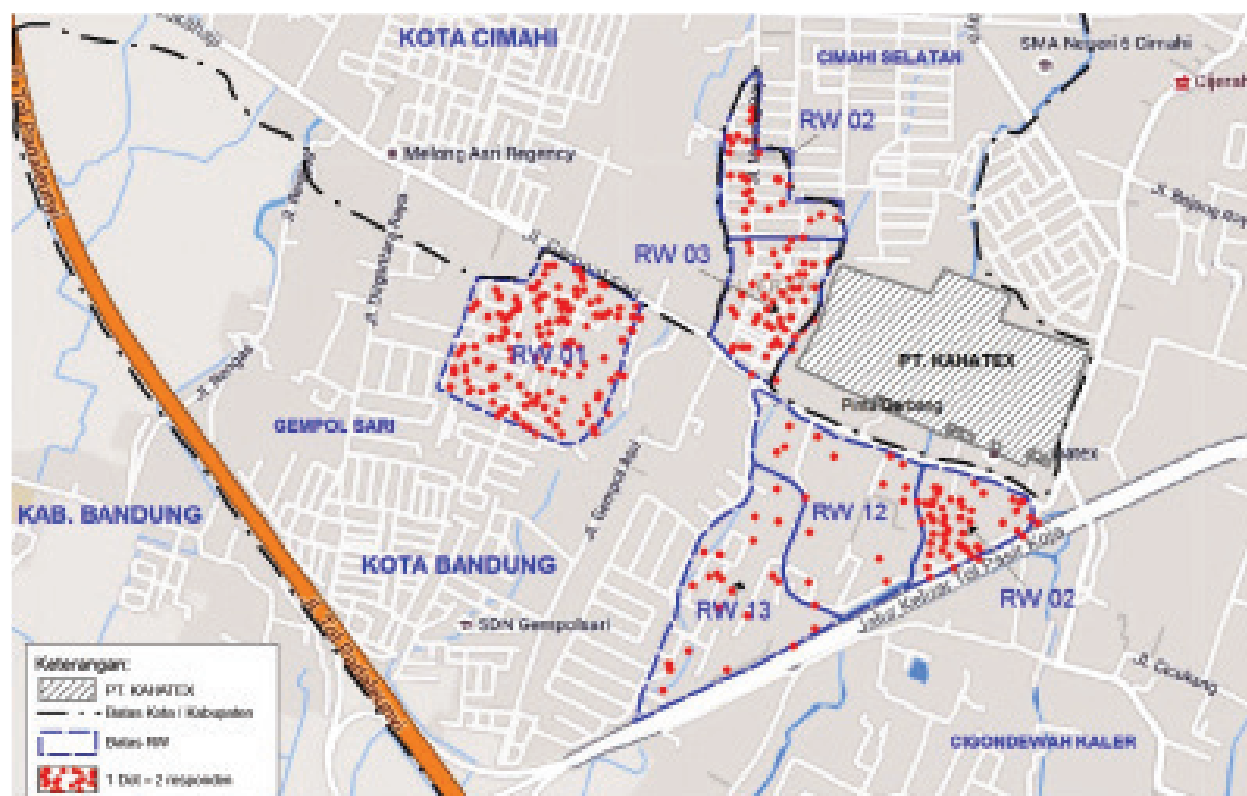
that female factory workers' average daily energy and protein intake for three age groups fell short of national recommendations by between 91 and 152 Kcal, and protein by 20-23 g. Nutritional intake was 262-411 Kcal less than measured energy outflow. Separate research in Bangladesh's urban areas, including Dhaka, found that the nutritional intake of adolescent female factory workers was deficient in both energy and nutrients. The authors urge immediate intervention to improve their nutritional status (Khan and Ahmed, 2005).

Bandung is an important centre for textile manufacturing in Indonesia. Women, often internal migrants, constitute around 80% of all workers in Indonesia's garment factories (Fair Wear Foundation, 2017).

The informal food economy is central to the food security of the urban working poor in many parts of Southeast Asia, including Indonesia and Thailand (Carrillo-Rodriguez and Reed, 2018). The role of street vendors and informal food providers was considered highly relevant to the food and nutrition security of textile factory workers – part of the 'subsistence' role of street vending described in Section 2 – because of those workers' low income and lack of access to cooking facilities. Uncovering this side of street vending and informal provision in Bandung is important if policy is to encompass the food system of the working poor, and not just the recreational role of street food.



Figure 1. Location of the PT Kahatex factory and lodgings of 300 surveyed female workers in Bandung and Cimahi (1 dot = 2 respondents)



The objective of this part of the research was to better understand the availability and accessibility of food outlets to female factory workers in Bandung, the workers' purchasing behaviour, and the role of different food outlets in their food and nutritional security, including dietary diversity.

### 3.1 Surveys of female factory workers and food vendors

Established in 1979, the textile company PT Kahatex employs more than 48,000 workers across two sites to the east and west of Bandung City. The particular factory covered by this research is located on the western border between Bandung City and Cimahi district, covering two *kelurahan* or sub-sub districts: Gempol Sari in Bandung City, and Cimahi Selatan in Cimahi district. *Kelurahan* are divided into several community associations called *rukun warga* (RW) which themselves consist of neighbourhood associations, *rukun tetangga* (RT).

A mayoral decree (888/2012, Article 15), declared certain locations along Jalan Gempol Sari in front of the Kahatex factory to be a red zone, where street vendors are prohibited from entering and doing business, due to

daily traffic jams. However, at the time of this research, Bandung city authorities had never carried out an operation against the street vendors, despite people repeatedly reporting them.

PT Kahatex factory workers tend to lodge near the factory to save time and transport costs. Information obtained from the local sub-district office shows that the majority of workers reside at Kelurahan Gempol Sari RW 01, RW 02, RW 03 and Kelurahan Cigondewah Kaler at RW 02, RW 12, and RW 13 (Figure 1).

In order to prepare our survey of PT Kahatex factory workers, we visited the Kelurahan Cigondewah Kaler and Gempol Sari offices, but found very limited information. The factory workers tend not to register as transfer residents at these local offices in order to become formal residents of Bandung City. They mostly keep their residential status from the areas they have migrated from, since their factory contracts mean their stay may only be temporary. However, the *kelurahan* offices were able to tell us in which neighbourhoods the PT Kahatex factory workers were likely to live.

Through a participatory mapping exercise with community leaders in the area, we were able to create a list of female factory workers to populate our survey. The neighbourhood leaders (both *rukun warga* and *rukun tetangga*) gave us a complete list of temporary residents, including those who work at the Kahatex factory. Apparently, the RT head had made it mandatory for landlords of dormitories or rented houses to report and make a copy of their residential ID cards. The participatory mapping process in both *kelurahan* showed 2,635 PT Kahatex female factory employees: 1,829 in Gempol Sari, and 806 in Cigondewah Kaler.

The sample population of 308 of these workers was randomly selected in December 2015 across the six target *rukun warga* in Cigondewa Kaler and Gempol Sari using the Slovin formula.

Each female factory worker in the sample was given a seven-day food journal to be filled in and collected every day by a field assistant. The daily diary covered the three mealtimes plus snacks (giving a total of up to six meal occasions), and workers were asked to report the type of food, amount, location of consumption, source, and cost for each meal occasion (see Annex 1).

The women workers we surveyed were aged from 18 to 53 years old, with an average age of 23, with 79% in the category of 'young productive age' (19-29) and 13% classed as 'advanced productive age' (30-49). Only 11% were local residents; the remainder being migrants mainly from the districts and cities scattered across West Java. All respondent migrants stay in rented rooms or houses near the factory, where rental prices ranged between IDR350,000 and IDR500,000 per month. The respondents lived as immigrants for 3.5 years on average, while the oldest respondents had lived there for 25 years. Most respondents had graduated from senior high school (77%) and junior high school (18%). Some had dropped out of senior high school or university. So on average the female factory workers at Kahatex had a good educational background.

In terms of employment status, 27% of surveyed workers had non-permanent status and were paid a wage based on a day rate. The other respondents reported that they had long-term permanent employment (37%) or contracted worker status (36%) at PT Kahatex. However, despite the status of permanent employee dominating the employment

status, labour turnover at the factory was very high. Most respondents (57%) had worked between one and five years, while 28% – mostly non-regular workers and/or workers on probation – had worked for less than a year.

Most of the food vendors in the area surveyed are informal actors, and therefore the local government offices were not able to provide lists of registered food vendors. Instead, an inventory of food vendors and services was created through a community-led mapping exercise. Through the mapping process, residents were able to show in detail where the food vendors were present at different times of service (morning, noon, afternoon, and evening).

Following some training, the mapping exercise was carried out in the main area where most female factory workers lived. Ten community members were involved in the process. Each group explored their own area of the main road and the RW residential areas, GPS tagging any food vendor and service location found and recording information such as the type of vendor, food provided, hours of operation and business characteristics. They also interviewed and observed the vendors to capture and confirm information on the businesses. The groups carried out interviews and observations during the changes in factory workers' shifts, from 6am to 7.30am and 1pm to 2.30pm, while observations in the residential area were carried out after the afternoon and evening shifts.

### 3.2 Food availability for factory workers

#### Food providers based on types of vendor

Food providers in the area of the Kahatex factory can be classed into four main categories: minimarts (convenience stores of national chains Alfamart and Indomaret); different classes of kiosk or store; *warung* (food stalls, often in front of a home); and street vendors (mobile and static).

**Minimarts** are convenience stores selling groceries and other goods, part of a national or transnational chain and managed professionally using a computerised system and employing several staff. Minimart buildings are generally bigger than regular stores or *warung* and sell more items, with an emphasis on processed and packaged foods rather than fresh produce. There were three minimarts recorded at the research location: two Alfamarts and one Indomaret. One is located in front of the Kahatex factory and the other two are near the Gempol Sari village housing area.

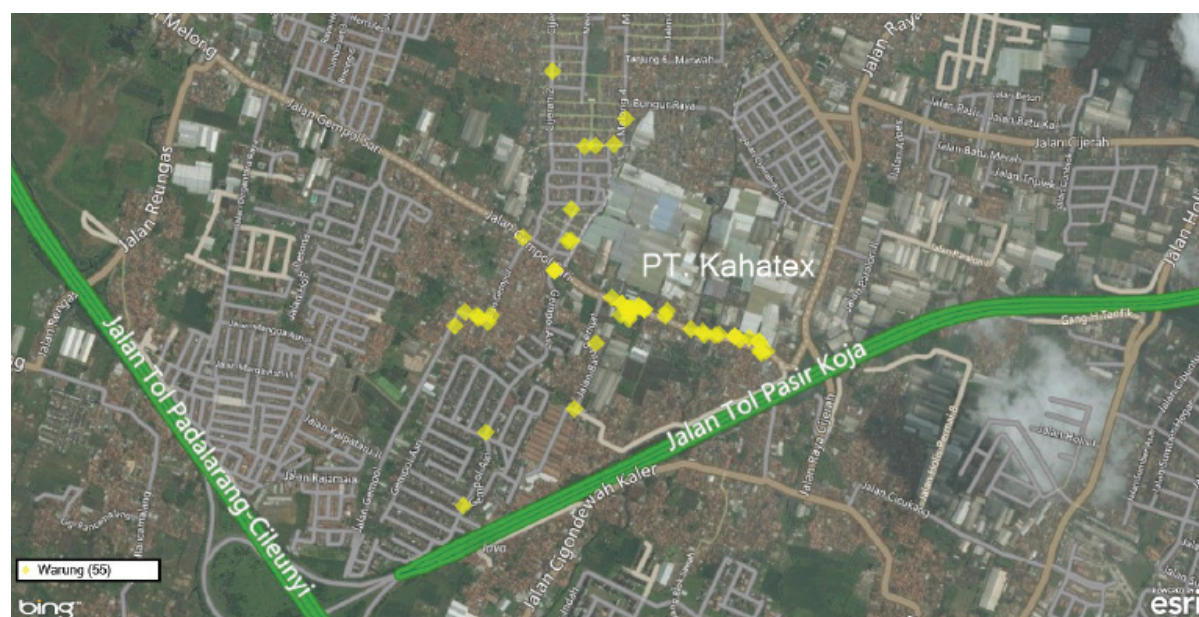
An aerial satellite view of an industrial or commercial area. A large green diagonal road labeled "Jalan Tol Pasir Koja" runs from the bottom left towards the top right. Another road, "Jalan Cigondewah Kaler", runs horizontally across the middle. Numerous red square markers are scattered throughout the area, primarily along the roads and near buildings. Three yellow square markers are also visible. The text "PT. Kahatex" is printed in white in the upper right quadrant. In the bottom left corner, there is a legend box with two entries: a yellow square followed by "Minimart (3)" and a red square followed by "Kios/Toko (148)". The Bing logo is in the bottom left, and the Esri logo is in the bottom right.

A narrow alleyway in a traditional Chinese market. On the left, a stall with a wooden counter displays various goods, including hanging orange bags. On the right, a stall with a blue frame holds a large tray of oranges. The ground is paved with stone tiles.

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Figure 3. Distribution of food stall or *warung* in the research location



Street vendors operate two basic models: *PKL Mangkal* (static) who tend to stay at the same place each day, and *PKL Keliling* (mobile) who travel around during the day to find customers.

There were 207 street vendors – 50% of all food vendors recorded in the research location—of which 139 were static and 68 mobile. The majority of them sell main courses (112 vendors) specialising in single dishes, with the remainder selling snacks (47 vendors). Half of them work in front of the Kahatex factory (106 vendors) and the other half in

residential areas. While static street food vendors have limited seats, mobile street food vendors have nowhere to sit at all. The distribution of street vendors in the research location can be seen in Figure 4.

On the main road in front of the Kahatex factory, street vendors (mostly static) dominate food vending (see Table 5). These vendors work between factory shifts to target employees as their main customers. In the area around the factory workers' housing, the pattern shifts to kiosks and mobile street vendors.



Street vendors

Figure 4. Distribution of street vendors in the research location



### Type of food available to factory workers

The types of food available to factory workers can be divided into five groups: unprocessed food; main courses; snacks; drinks; and fruit. Table 6 shows the percentage of each food group provided by the five types of vendor outlined above: minimart; kiosk/store; *warung*; and street vendors.

Fresh ingredients refer to food that requires processing before it can be consumed. This is mostly sold by vendors located on the west side of the front of the Kahatex factory. The vendors of fresh ingredients sell chicken, fish, vegetables such as carrots and *kangkong* (also known as water spinach), as well as tofu and tempeh. Those selling fresh ingredients are mostly static street vendors, and they

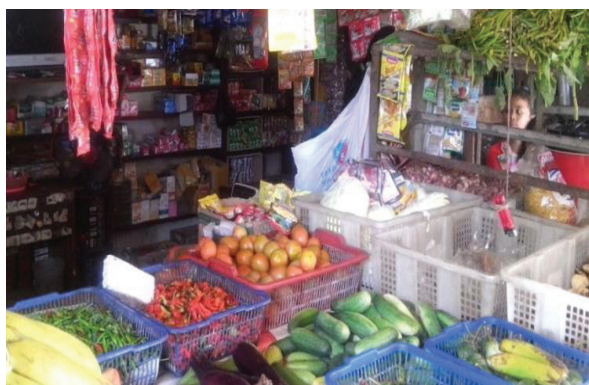
Table 5. Number of food providers by type of vendor

Location	Mini-mart	Kiosk/ store	Food stall ( <i>warung</i> )	Street vendor		Total
				Mobile	Static	
Main road In front of Kahatex factory	2	25	36	16	90	169
Factory workers' housing area	1	123	19	68	52	244
<b>Total</b>	<b>3</b>	<b>148</b>	<b>55</b>	<b>68</b>	<b>139</b>	<b>413</b>

Table 6. Role of different food vendors in providing each type of food to surveyed women factory workers (% meal occasions as recorded in food diaries) (N=304)

	Minimart	Kiosk/store	Food stall ( <i>warung</i> )	Street vendor		Total
				Mobile	Static	
Fresh ingredients	0	0	5.9	0	94.1	100
Fruits	0	5.9	5.9	23.5	64.7	100
Snack food	1.2	49.8	4.7	19.8	24.5	100
Main course	0	15.7	38.2	7.8	38.2	100
Drinks	0	16.7	12.5	25.0	45.8	100





Unprocessed and fresh food sold by street vendors in front of the Kahatex factory

are small in number (17 vendors or 4%), because employees at the Kahatex factory generally prefer ready-to-eat food. Consumers who buy unprocessed food are usually Kahatex factory employees who are married and live with their wife or husband and children.

Ready-to-eat main courses generally have high carbohydrate content – dominated by rice, rice cake (*lontong*) and other varieties of rice – together with cooked vegetables and protein such as fish. These meals are provided by static street vendors (46%) and *warung* (38%). Prices are relatively low; for instance, one plate of rice with fish and vegetables

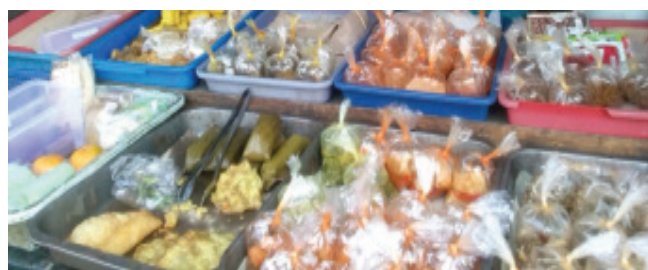
was sold at the time of the survey at IDR9,000 (less than USD1); rice cake with chicken *kari* (curry) was IDR5,000; and chicken was sold at IDR3,000-4,000 per piece. Ready-to-eat vegetables packed in a plastic bag, such as vegetable soup, processed cabbage, carrot, broccoli and beans, cost IDR2,000. Protein foods, such as egg and fish, were sold at IDR3,000. One serving of rice cost IDR3,000. Therefore, employees could buy a main course meal consisting of rice, vegetables, tempeh, and egg for only IDR7,000 – around USD0.50.



Fish rice with veg, tempeh and sour soup, Rp 9.000



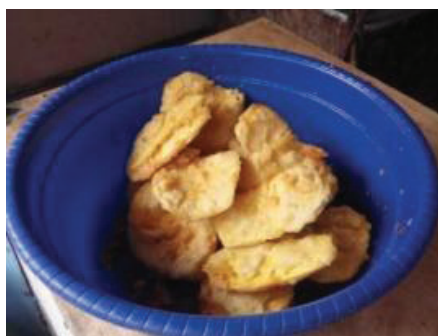
Lontong chicken curry, Rp 5.000



Examples of main course dishes available from street vendors around the Kahatex factory



Steamed chicken intestine, Rp 5.000



Some processed snacks sold by street vendors

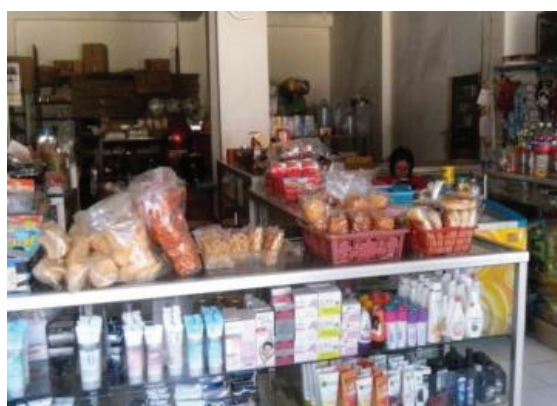
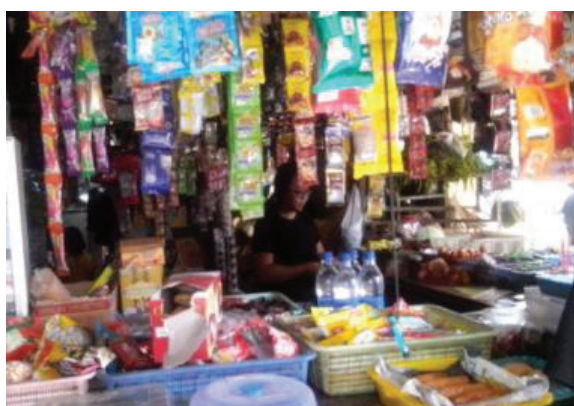
Snacks are light food consumed between meals, including processed foods like chips, *batagor* (fried tofu meatballs), and cookies. However, sometimes snacks like noodle soup can replace a main meal.

Fruit can also be categorised as a snack. Fruit vendors sell fresh fruit whole or in pieces. Sometimes they also sell processed fruit, such as *rujak* (mixed fruits with peanut and palm sugar sauce).

Most processed factory-made snacks, such as cookies, are available at stores or kiosks. 126 of all the vendors (50%)

sold cookies, while 112 (44%) sold fresh snacks, usually produced by the vendors themselves.

Drinks such as milk, tea, coffee, juice, bottled water or other packaged drinks are sold by several vendors. The price for fresh juice was quite high, at around IDR8,000. Those who wished to have juice at a cheaper price could choose a small packet (sachet) of juice for IDR3,000. Those selling these drinks comprised static street vendors (46%), mobile street vendors (25%) and kiosks (17%).



Several types of snack available at kiosks or stores



Change of shift outside the Kahatex factory

### Food providers' service times

Workers generally eat before they go to work, during their break, when they return from work, and when they rest at home. Their activities can be observed between shifts at the Kahatex factory. There are three shifts at the factory:

- Shift 1 (morning) from 7am to 2pm
- Shift 2 (afternoon) from 2pm to 11pm, and
- Shift 3 (night) from 11pm to 7am.

In the morning, both *warung* and street vendors get ready to start selling food at 5.30am. Street vendors start earlier because they have to carry their goods from their home to the factory. Workers tend not to have time for breakfast at home, so they will buy food from vendors near or on the way to the factory. Some workers have breakfast or lunch at a restaurant and others take food to eat at the factory.

Vendors with businesses in housing areas begin preparing the day before; those who make fresh food start as early as 3am to be ready to serve customers at 5.30am when the workers leave for the factory.

The start of the morning shift is a time of heavy congestion. The street in front of the Kahatex factory is only 4-6 metres wide. It is packed with workers entering the gate of the factory or leaving the factory, as well as many street vendors. In addition, there are minibuses parked on the street waiting for customers. This heavy congestion on the road and walkways lasts until 8am when traffic begins to ease. After 8am, the mobile street vendors leave the factory and move to housing areas and schools near the factory. This is repeated at around 1-2pm during the break between the morning and afternoon shifts. The start of the evening shift is much quieter than the start of the earlier shifts.

As noted in Section 3, the main route which runs in front of the Kahatex factory, Jalan Gempol Sari, was designated as a red zone, with vending prohibited, though the prohibition was not being enforced.



### 3.3 Nutrition and diversity

It is clear that street vendors and informal food provision are central to the food security of these young women. But what about the nutritional quality of this food? Food diaries are not always a reliable record of overall nutrition because quantities are self-reported (Bingham *et al.*, 1994). But diaries can be used to assess dietary diversity.

#### Dietary diversity of female factory workers

As described earlier, nutritious, good quality food does not have to depend on animal sources, which are relatively expensive. Instead food **diversity** can ensure food quality and provision of micronutrients. There are internationally recognised indices for measuring dietary diversity, including the minimum dietary diversity for women of reproductive age (MDD-W), developed by the FAO (FAO and FHI 360, 2016) based on ten food groups:

- Starchy staples
- Pulses
- Nuts and seeds
- Dairy
- Meat, poultry, fish
- Eggs
- Dark green leafy vegetables
- Other Vitamin A-rich vegetables and fruit
- Other vegetables, and
- Other fruit.

The MDD-W score has been shown to be a good predictor of adequacy of micronutrient intake in Bangladesh (Nguyen *et al.*, 2018).

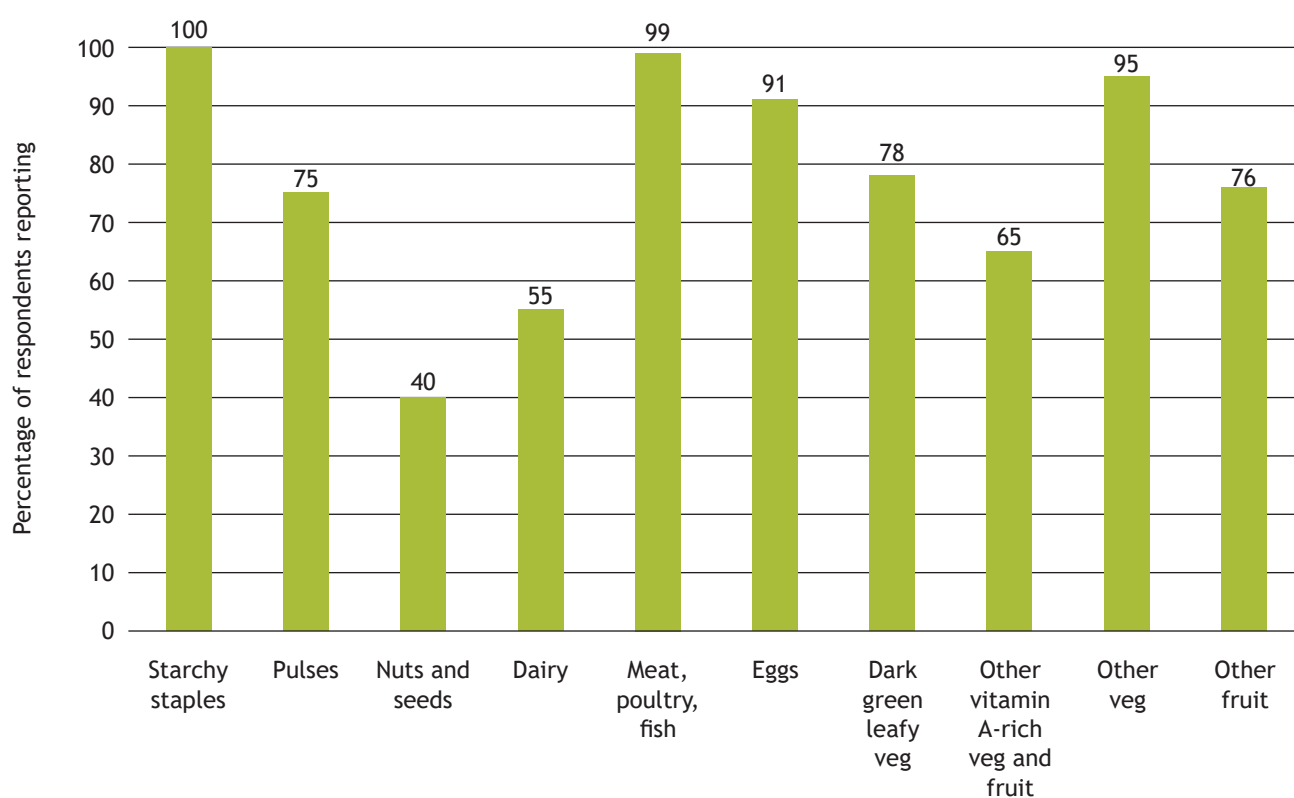
Most of the sampled female workers at the Kahatex factory (83%) had MDD-W dietary diversity scores of 7-10 out of 10, and 98% of the group had consumed items from at least five out of ten defined food groups the previous day, which constitutes the threshold for minimum dietary diversity for women aged 15-49 years under the MDD-W (Table 7). This demonstrates that traditional food sources such as *warung* provide very diverse food to those factory workers who are dependent on food prepared outside the home.

It is interesting to see what kind of food group most respondents consume as measured in the dietary diversity score. Figure 5 shows the percentage of respondents who reported consuming different MDD-W food groups over the preceding 24 hrs. The figure shows that all of the respondents ate starchy staples, such as rice or noodles, and either meat, poultry or fish. However, only 40% of the female workers ate nuts and seeds. Consumption of dairy could also be considered low (55%), perhaps due to cultural habits or avoidance of milk products due to their high fat content. Other food groups consumed by a limited number of respondents (65%) were vegetables and fruits rich in Vitamin A, such as papaya and mango.

Table 7. Dietary diversity scores by age group in surveyed women factory workers, 2015 (n=303)

		MDD-W dietary diversity score								Total
Age group		3	4	5	6	7	8	9	10	
<19	Freq	0	0	0	1	9	9	5	0	24
	%				0.3%	3.0%	3.0%	1.6%		7.9%
19-29	Freq	1	4	16	25	52	61	68	13	240
	%	0.3%	1.3%	5.3%	8.2%	17.1%	20.1%	22.4%	4.3%	78.9%
30-49	Freq	0	0	0	4	5	13	13	4	39
	%				1.3%	1.6%	4.3%	4.3%	1.3%	12.8%
Total	Freq	1	4	16	30	66	83	86	17	303
	%	0.3%	1.3%	5.3%	9.9%	22.0%	27.3%	28.3%	5.6%	100.0%

Figure 5. Consumption of different food groups by surveyed women factory workers (MDD-W groupings, 24hr recall using food diaries, n=304)



# 4. CONCLUSIONS AND RECOMMENDATIONS

In common with many rapidly growing cities, street vendors and other informal food providers have a contested place in the development of Bandung. In its regulations, the city has responded to the challenge with both hostility and engagement. There are policies to restrict vendors' presence in certain streets through zoning, and also policies to support relocation and formalisation of vending through the establishment of vendor centres.

The policy narrative has largely centred on the need for an end to traffic congestion and perceived public disorder on one hand, and the defence of vendors' livelihoods on the other. With formalisation and vendor centres comes an additional objective of street food as a strategy to attract tourists to the city. The role of street vendors in urban food security and the food system of the working poor, who are the backbone of Bandung's economy, has largely been overlooked.

This research, conducted in two parts, set out to fill that gap. The first part explored the nature of street vending in Bandung – the business models of vendors and their customer segments – from a qualitative survey in three districts of the city. The second part focused more empirically on street vendors' role in the food and nutrition security of low-income residents – in this case young migrant women textile factory workers.

The study found two quite distinct categories of street food consumers: the recreational/ leisure consumer and the subsistence consumer. The recreational consumer purchases food from street vendors once or twice a week, spending quite a large amount per visit. The subsistence consumer, on the other hand, purchases food from street vendors every day as their main food source. They eat street food two to three times a day, spending IDR10,000 to IDR15,000 (USD 0.7-1.0) per visit. Our exploratory survey was small and more research in this area is required. But these preliminary data suggest that street vendors have become the main food source for this second type of consumer, contributing 50-80% of their total food intake. Thus the nutrition and safety of street food are important issues for this group.

The centrality of street vendors and informal food providers to the food security of the working poor was uncovered in research among 300 mainly migrant female textile factory workers in the Gempol Sari area close to the large PT Kahatex textile factory at the western edge of the city. The women themselves were involved in data collection, using seven-day food diaries and 24-hour recall.

Despite the limitations of using food diaries for assessing nutrition, the research showed that food stalls or *warung* are generally the most important source of nutrition for the female factory workers; static street vendors were also important at lunchtime, while mobile vendors were more dominant sources of food in the morning and at night time. Applying the FAO tool for assessing women's dietary diversity, we can see that the informal food system was providing these factory workers with a diverse diet at low cost; the majority had dietary diversity scores of 7-10 out of 10.

## Policy and advocacy implications

The recreational/leisure consumer is important for Bandung City tourism, and the city government's relocation policy and promotion of food festival events are good for developing gastro-tourism in Bandung. But these policies do not benefit low-income citizens' food security. This research has shown that the food system of the working poor is supported by thousands of street vendors and *warung* within the informal and semi-formal food economy. In common with other cities, municipal policy towards street vendors is undifferentiated. A one-size-fits-all policy for street vendors may fail to take these different segments into consideration, and relocation policy may negatively affect the food and nutrition security of low-income workers. While they can create traffic congestion and crowding during workers' break times, removing or relocating vendors to other areas would have an impact on the availability of food for factory workers, because workers need access to food close to their place of work and residence.

Evidence is key to supporting a shift in approach to the informal food system since this topic is politically sensitive in Indonesia and across Southeast Asia. By lifting the lid on the food system of the working poor, city authorities – including planners and Bandung’s Food Council (*Dewan Ketahanan Pangan DKP*) – can be convinced with evidence of the importance of informal trading compared to other systems. Policies can then be adjusted to the realities and benefits of informal and semi-formal provisioning that build on its flexibility and advantages, while minimising risks to consumers. Hybrid forms of governance of traditional vending that combine local level formalisation with self-regulation – towards improved traffic flow, food safety and nutrition, for example – need further investigation. These hybrid approaches provide alternatives to the push towards modern formal distribution (Vorley *et al.*, 2015).

Evidence is still largely brought into policy processes by experts. But if the subjects of that expert research can generate evidence themselves, either as primary data or from existing information, they can advocate directly around their priorities, and be less dependent on others to set the agenda (Vorley, 2018). In the example from this paper, factory workers and their organisations were involved in generating data about their diets, but did not have a role in analysis or interpretation of the data. Follow-up research will ensure that time and resources are available to undertake the critical steps of feeding back the results to the workers and vendors, and involving them in interpretation and advocacy.

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# ANNEX 1

## DAILY FOOD DIARY

### FOOD CONSUMPTION DAILY SHEET

(Day 1-7)

Fill every evening and collect in the following day

Respondent ID : ..... Name: .....

Enumerator ID: ..... Date: .....

Time	Meal	Quantity/ Volume (portion, piece, item, bowl, glass, etc)	Location 1. House/boarding 2. Near house/ boarding 3. Near factory 4. Other(...)	Outlet 1. minimarts 2. food stall 3. kiosk 4. street vendor (static) 5. street vendor (mobile) 6. other (...)	Cost (Rp)
<b>Breakfast</b>	<b>Main meal</b>				
	cooked rice/steamed rice/ porridge/noodle/bread				
	side dishes				
	vegetables				
	fruits				
	drink				
	snack/drink (after breakfast)				
<b>Lunch</b>	<b>Main meal</b>				
	cooked rice/steamed rice/ porridge/noodle/bread				
	side dishes				
	vegetables				
	fruits				
	drink				
	snack/drink (after lunch)				
<b>Dinner</b>	<b>Main meal</b>				
	cooked rice/steamed rice/ porridge/noodle/bread				
	side dishes				
	vegetables				
	fruits				
	drink				
	snack/drink (after dinner)				

Note .....

