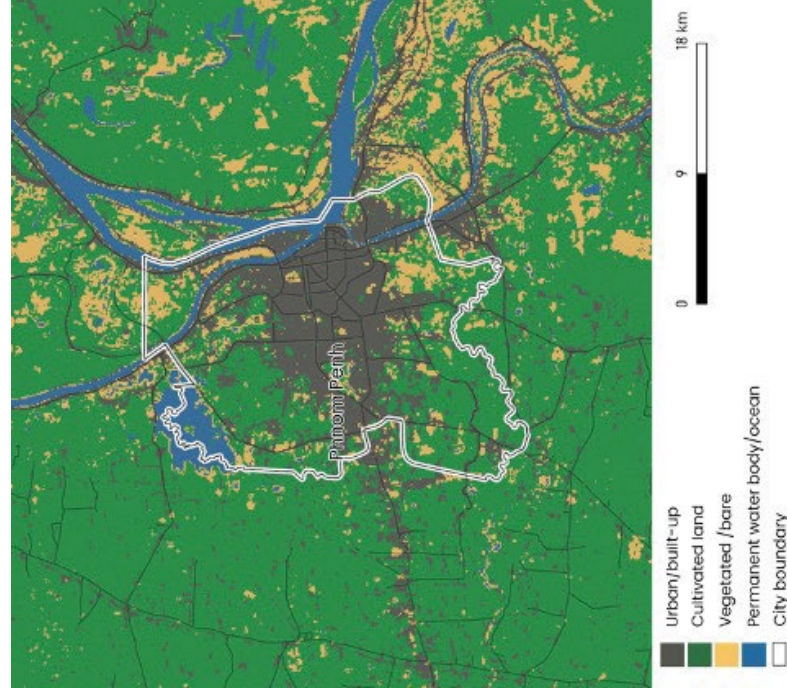


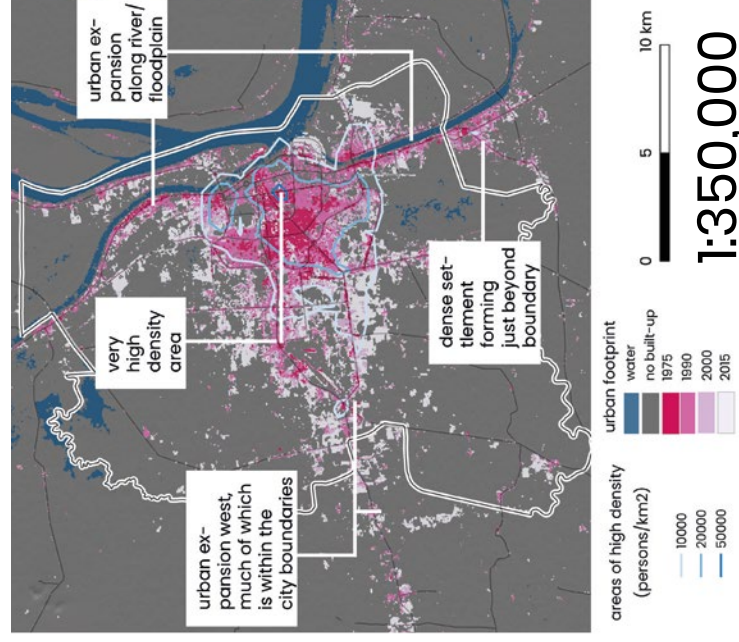
External drivers

The landcover and urbanisation maps illustrate some key external drivers that shape the food system in Phnom Penh. These include the use of land and indications of where population density and growth are most intense, highlighting the relationship cities have with food production, and suggesting areas of higher vulnerability during crises that affect the food system

Landcover 2015



Urbanisation trends



Key spatial indicators

Indicator	Phnom Penh	Average, similar size LMIC cities in the region (excl. CXB)	Average, similar size LMIC cities in the region
Population density, persons per km ²	6,905	9,468	9107
Slum population	approx. 25%		
Total built-up area in 2015, km ²	77.4	471.0	76.0
Total resident population in 2015	1,816,032	11,002,460	
Surface of the built-up area per person in 2015, m ²	42.6	37.3	40.7
Proportion of total resident population potentially exposed to floods in 2015 (%)	90%	38%	
Proportion of cultivated land in 50km radius	93.4%	33.3%	
Cultivated land in 50km radius per 100,000 persons, km ²	193.5	44.0	
Number of supermarkets per 100,000 persons	4.3	4.8	
GDP per capita	2,643.7	4,200.4	
Growth rate	3.0	2.4	13.0
Proportion of population of the urban agglomeration living outside the formal boundaries of the city	13%	37%	

Food supply chains

The following table illustrates the location of the suppliers and customers of surveyed private sector entities, giving an indication of the proximity of food supply chains to the city.

The proximity of food supply chains to the city

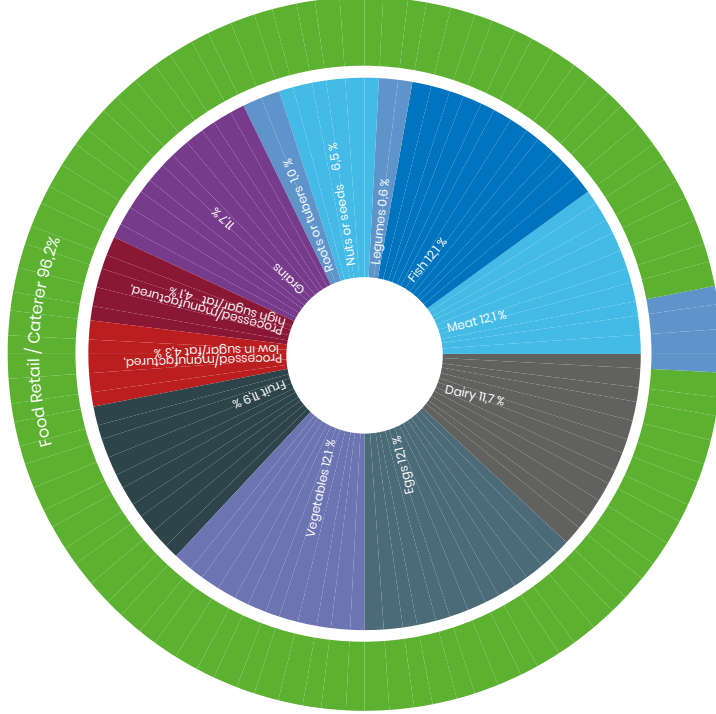
	Markets/ Customer locations	Supplier locations
Within the city	92.3%	91.8%
Surrounding region	7.7%	8.2%
Other regions of the country internationally	-	-

Phnom Penh is the largest city and capital of Cambodia. It is built on the banks of the Tonlé Sap, Mekong, and Bassac Rivers in low-lying, fertile agricultural land. Around 90% of the city's population is at risk from annual flooding. The city has expanded north-south along the river banks and also in a westerly direction, with the urban footprint growing at around 115% per annum. Population growth rates are c. 3% per annum.

Food environment

The local food system actors and the types of food available in the local market are shown in the below figure. The inner circle consists of the types of food businesses while the outer circle shows the types of food the system produces, processes or sells.

Food system actors & foods available in the local market



Food Storage / suppliers 3.4

4. Outcomes & Pre-COVID-19 vulnerability

Nutritional status, dietary diversity and consumption of unhealthy foods

The following figures date from pre-COVID-19 and indicate vulnerabilities before the crisis, unless recent figures are available in which case a comparison between pre-COVID-19 and recent data is presented.



Average minimum dietary diversity score for women (MDD-W), Phnom Penh Province



Children, 6-23 months

Foods consumed by breastfeeding children (6-23 months), Phnom Penh



Minimum acceptable diet, (6-23 months), urban Cambodia



Proportion of wasted and stunted children, Phnom Penh



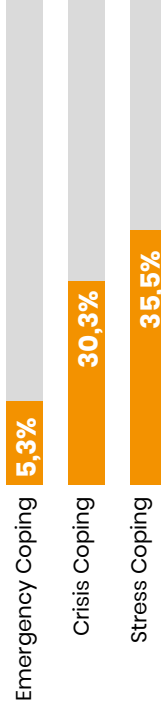
Food security

Changes in the food security levels of Phnom Penh's population before and during COVID-19 is presented based on the available data, using the Food Consumption Score (FCS) and the Livelihood Coping Strategy Index (LCSI). Data using the Food Insecurity Experience Scale (FIES) was not available.

Prevalence of poor to borderline food consumption score in Phnom Penh

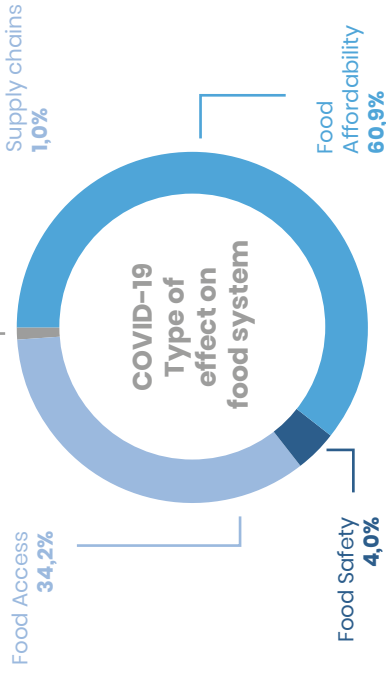


Livelihoods coping strategy index (LCSI) in households with children 0-59m, Phnom Penh province during COVID



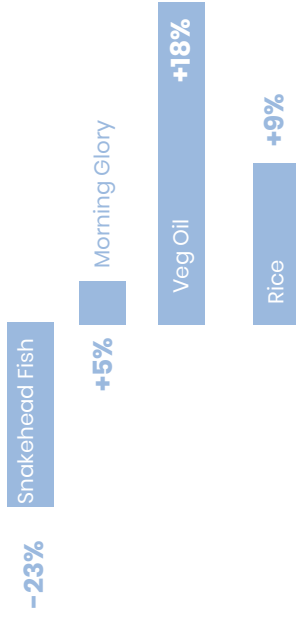
5. COVID-19 impact & response

This section explores the effects of COVID-19 on Phnom Penh's food system, examining supply chains, food prices and responses.



Change in food prices since COVID-19

Change in food prices from May 2020 to March 2021 on four selected food items

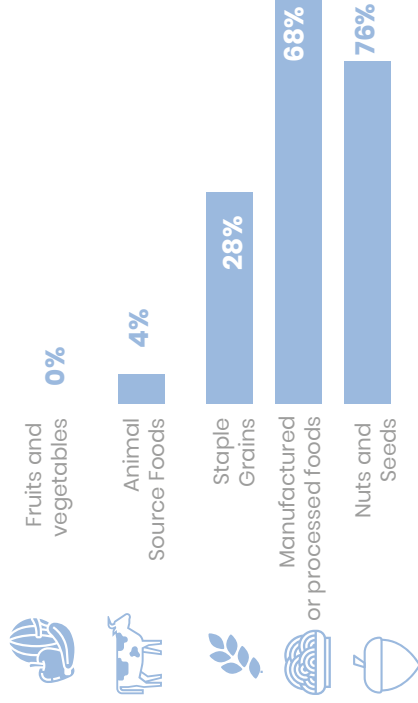


Extent of disruption of the COVID-19 pandemic on markets and supply chains

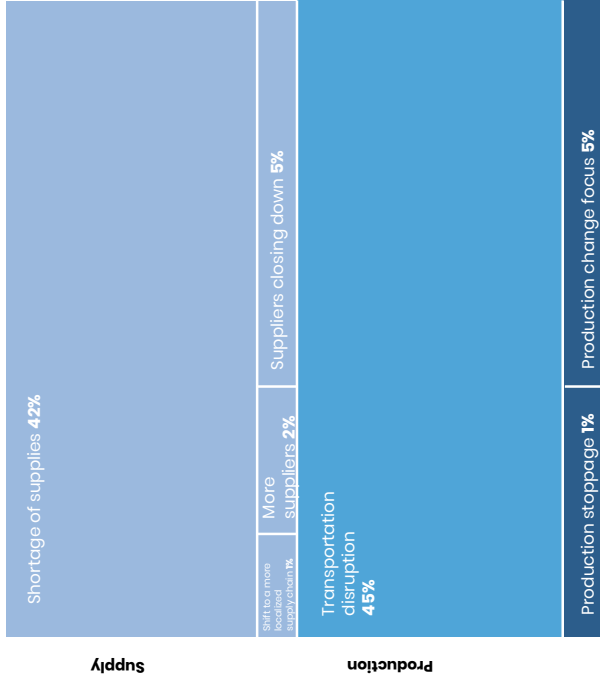
■ Yes - Severely ■ Yes - Moderately ■ No



Foods that were short in supply



Effects of COVID-19 on company supply chains



Proportion of surveyed businesses whose income decreased between 25% and 50%



Data Sources

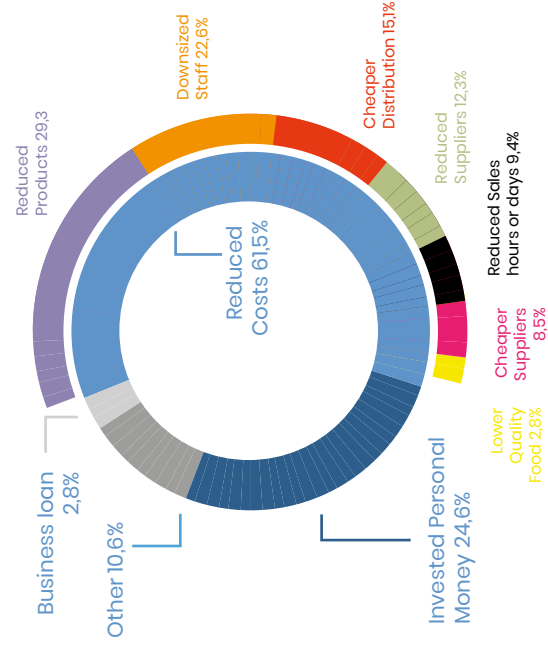
MDD-W Socioeconomic impacts of COVID-19 on households in Cambodia, Round 3, 2020
Foods consumed by breast-feeding children (6-23 months) Secondary analysis of the DHS 2014
Minimum acceptable diet Food systems dashboard, 2019-2018
Proportion of wasted and stunted children Secondary analysis of the DHS 2014. Stunting prevalence is classified as low and wasting prevalence as medium by WHO standards.

Food Consumption Score (FCS) CSES 2017; COVID19 Social Impact Study.
Livelihoods coping strategy index (LCSI) Socioeconomic impacts of COVID-19 on households in Cambodia, October 2020
Monthly food prices WFP VAM
Section's Food supply chains, Food environment, COVID-18 impact and response Dikoda 2021

Responses and coping mechanisms

Impacts of COVID-19 on the food system are mitigated by responses by development partners and the government and by adaptations taken by food companies to changing conditions. This section illustrates some of these adaptations and responses, highlighting possible vulnerabilities and opportunities presented by the crisis

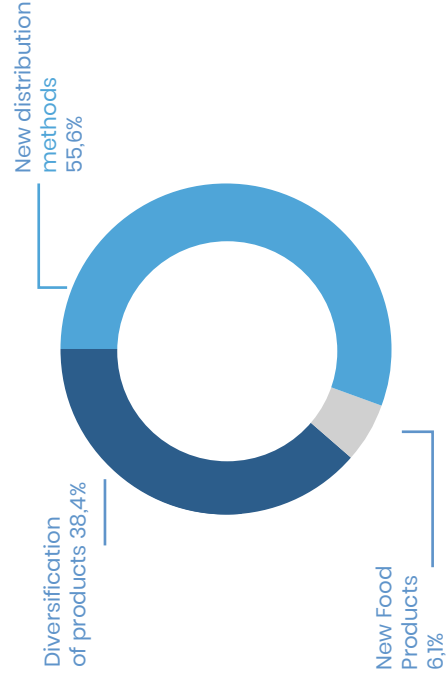
Private sector's methods to cope with lower income with breakdown of reduced costs



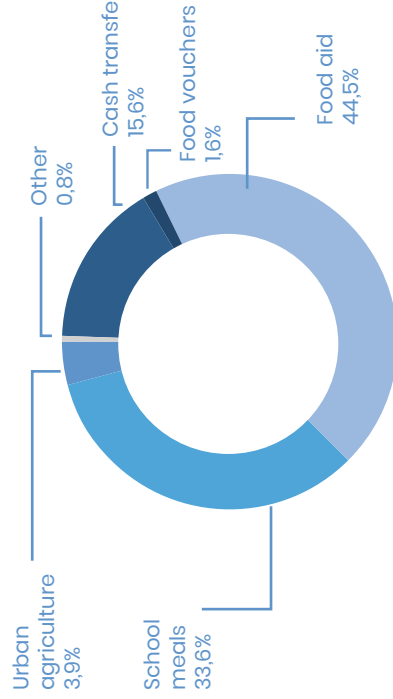
Methods and data sources

The brief describes the city's food system based on the Food Systems Framework presented in the report, with focus on available data and components that are likely to be impacted by COVID-19. All data is on city level unless indicated otherwise. Sources for the city brief include primary and secondary data and are listed after each figure or table. DHS data has been disaggregated to strata level to obtain figures specific to the city. Dikoda surveys took place in March 2021 and were carried out on governance, NGO and private sector stakeholders. The development of the typology and the full survey methodology is detailed in the report. Key spatial indicators apart from slum population are from 2015 because data was consistently available across cities.

Other methods of adaptation by companies during COVID-19

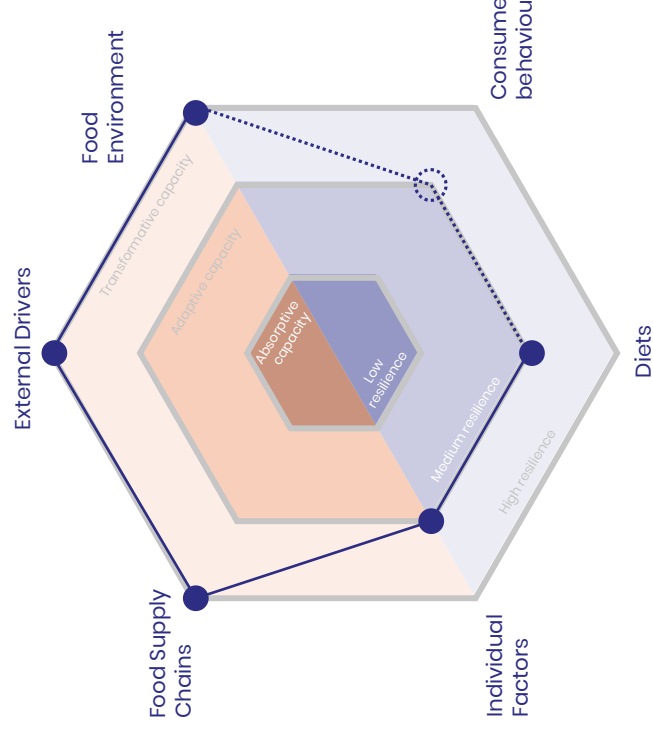


Response by Development Partners to food insecurity



Typology

The typology contains one core indicator for each dimension, giving an indication to the food system's vulnerability and resilience in the face of COVID-19. No indicator was chosen for consumer behaviour.



Population density, persons per km2

Calculated from DHS, data. Florczyk, A et al. (2018). GHS Urban Centre Database 2015, multitemporal and multidimensional attributes. R2018A. European Commission, Joint Research Centre (JRC). <https://data.jrc.ec.europa.eu/dataset/53473144-b88c-44bc-b4c3-4583a5df1547e>

Slum population

UNDERSTANDING SLUMS: Case Studies for the Global Report on Human Settlements 2018. Fallavier P. The Case of Phnom Penh, MI. Data table sources: Calculated using GIS spatial analysis techniques by Dikoda using Copernicus Global Land Service data (2018) Buchhorn, M. et al. Copernicus Global Land Service: Land Cover 100m: collection 3, epoch 2018, Globa 2020. Accessed Feb 2020

Cultivated land in 50km radius, km2

Copernicus as above

Cultivated land in 50km radius per capita, km2

Copernicus as above

Number of markets/supermarkets per 100,000 persons

Calculated using GIS and OpenStreetMap data for each city