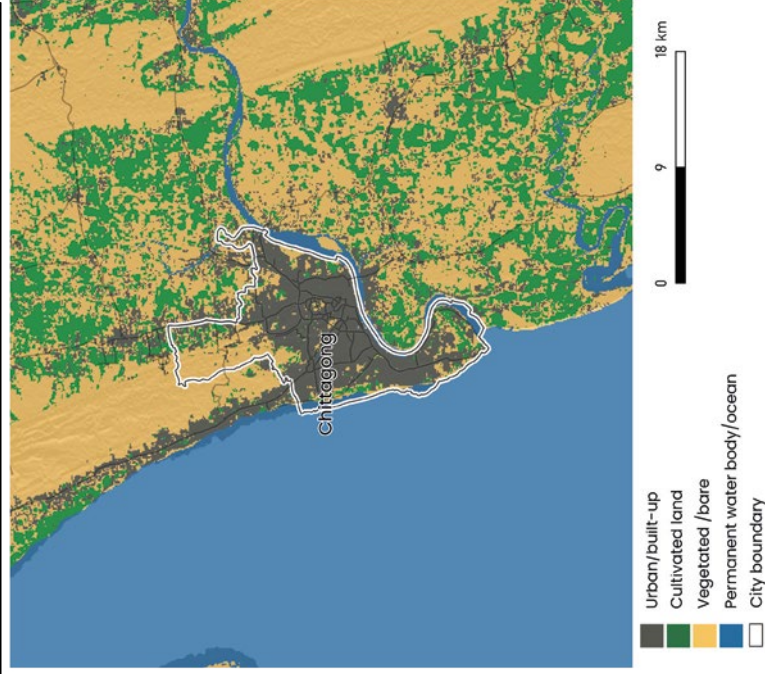


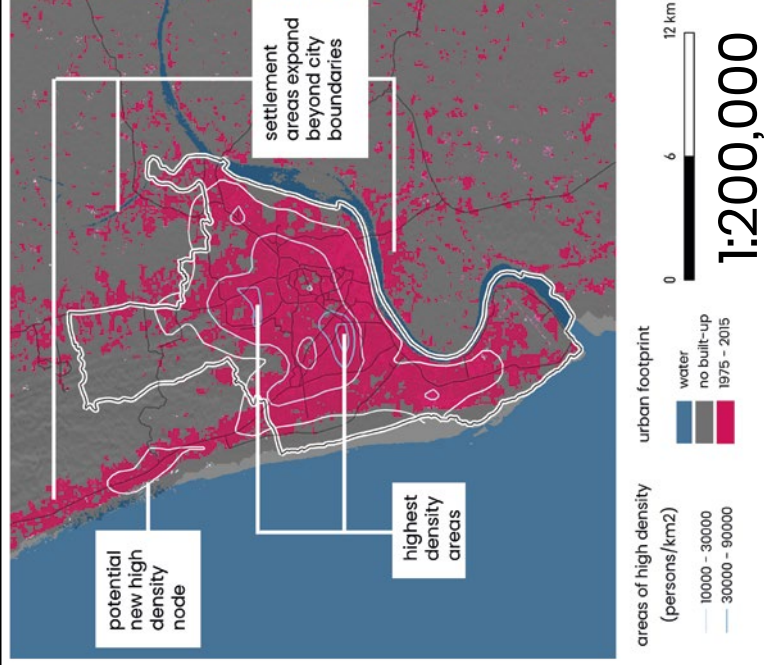
External drivers

The landcover and urbanisation maps illustrate some key external drivers that shape the food system in Chittagong. 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	Dhaka	Average, similar size LMIC cities in the region (excl. CXB)	Average, similar size LMIC cities in the region
Population density, persons per km ²	6,626	9,468	9,493
Slum population	493,441		
Total built-up area in 2015, km ²	157.8	471.0	304.6
Total resident population in 2015	5,293,804	11,002,460	
Surface of the built-up area per person in 2015, m ²	29.8	37.3	45.6
Proportion of total resident population potentially exposed to floods in 2015 (%)	65%	38%	
Proportion of cultivated land in 50km radius	15.4%	33.3%	
Cultivated land in 50km radius per 100,000 persons, km ²	18.0	44.0	
Number of supermarkets per 100,000 persons	0.7	4.8	
GDP per capita	3,932.2	4,200.4	
Growth rate	1.3	2.4	1.8
Proportion of population of the urban agglomeration living outside the formal boundaries of the city	129%	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

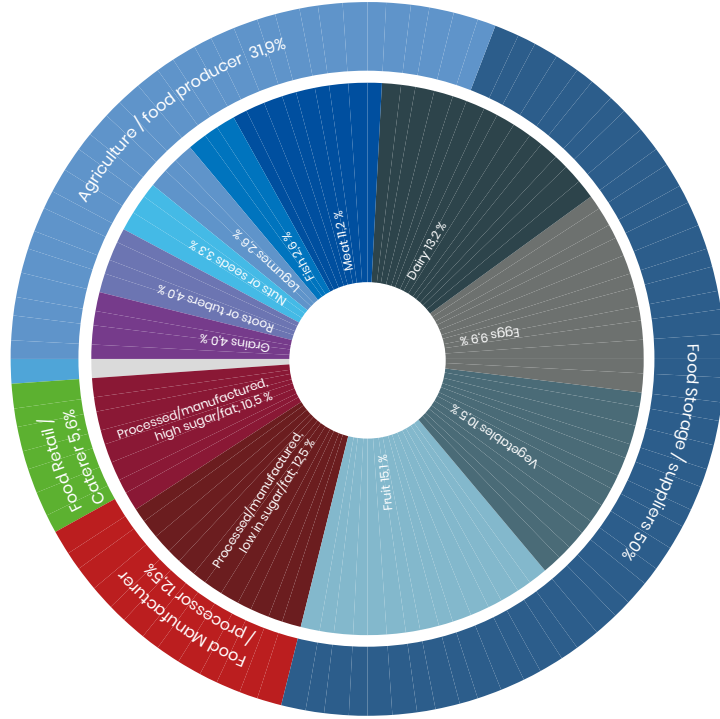
	Markets/ Customer locations	Supplier locations
Within the city	72.5%	46.5%
Surrounding region	17.6%	26.8%
Other regions of the country	8.5%	26.1%
Internationally	1.4%	0.7%

Chittagong (or Chattogram) is the second-largest city in Bangladesh and the location of the country's busiest international port – one of the world's oldest and largest in south-east Asia. The city is located on the Bay of Bengal and banks of the Karnaphuli River which have constrained growth of the city to the west and the south. However, urban development has extended along major transport routes north of the city and across the river to the south. More than half of the population of this urban agglomeration live outside the formal, Chattogram City Corporation area.

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



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.



Children under 5 years

Proportion of wasted and stunted children, Chittagong city



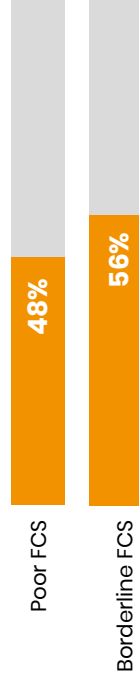
Minimum acceptable diet (Chittagong Division)



Food security

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

Poor to borderline Food Consumption Score among urban casual day labourers in Bangladesh



Prevalence of moderate or severe food insecurity (Food Insecurity Experience Scale) in adolescents



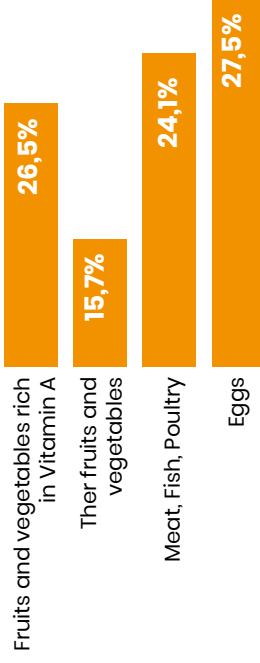
Women

Prevalence of minimum dietary diversity (MDD-W) among women and adolescents, Dhaka division



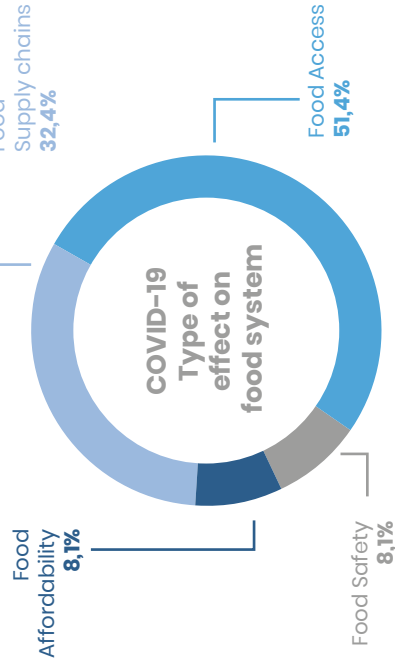
Children, 6-23 months

Foods consumed by breastfeeding children (6-23 months), Chittagong city



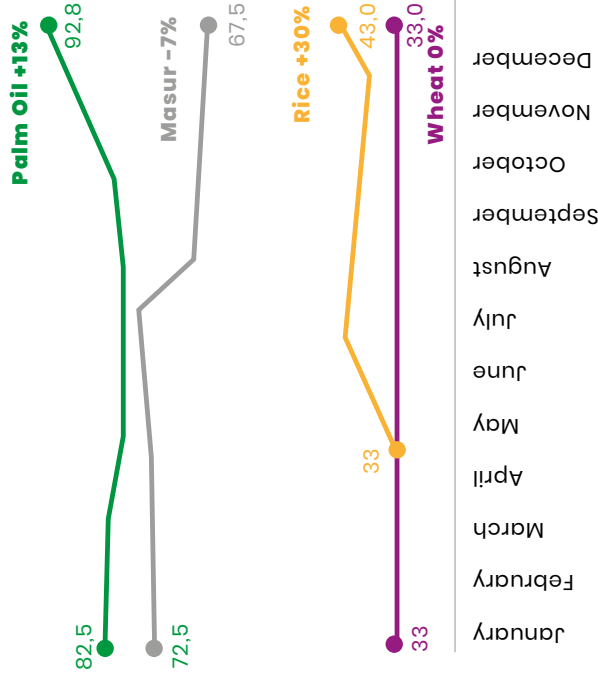
5. COVID-19 impact & response

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



Change in food prices since COVID-19

Change in food prices from January to December 2020 on four selected food items, BDT

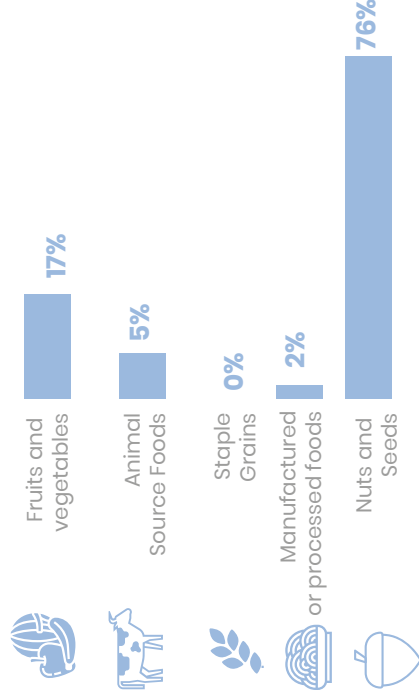


Extent of disruption of the COVID-19 pandemic on markets and supply chains

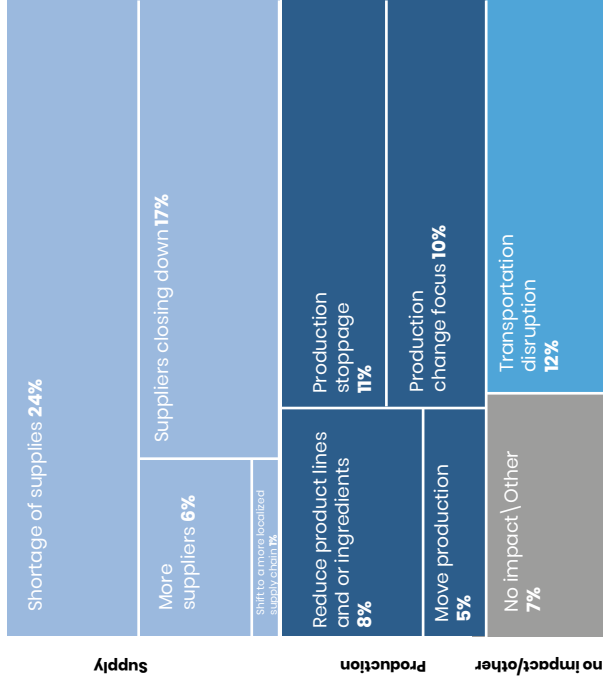
■ Yes - Severely ■ Yes - Moderately ■ No



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

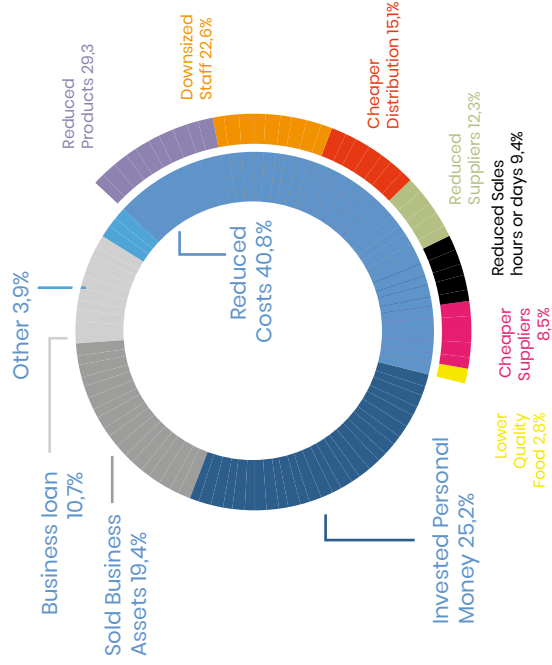
MDD-W FSNP 2015 for Pre-COVID-19 among women only; Second rapid assessment of food and nutrition security in the context of COVID-19 in Bangladesh: May – July 2020, FAO for during COVID-19, includes adolescent males and females.
Foods consumed by breastfeeding children (6–23 months) Secondary analysis of the DHS 2017-18 **Minimum acceptable diet (MICS 2018)**
Proportion of wasted and stunted children Secondary analysis of the DHS 2017-18. Wasting and stunting prevalence are each classified as medium by WHO standards, but in absolute numbers this represents a large cohort of children that already have a suboptimal nutritional status (in

Chittagong division this represents a staggering 11 million stunted children).
Food Consumption Score (FCS) Analysis of Food Security and Vulnerability in the Urban and Rural Areas in Bangladesh, WFP
Prevalence of moderate or severe food insecurity (Food Insecurity Experience Scale) in adults Second rapid assessment of food and nutrition security in the context of COVID-19 in Bangladesh: May – July 2020, FAO
Monthly food prices WFP VAM
Sections' 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

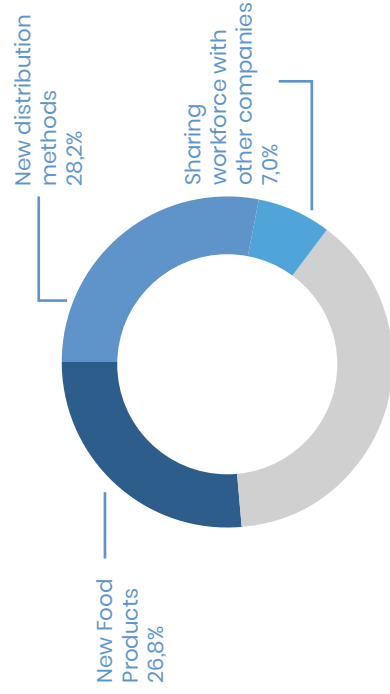
Private sector's methods to cope with lower income with breakdown of reduced costs



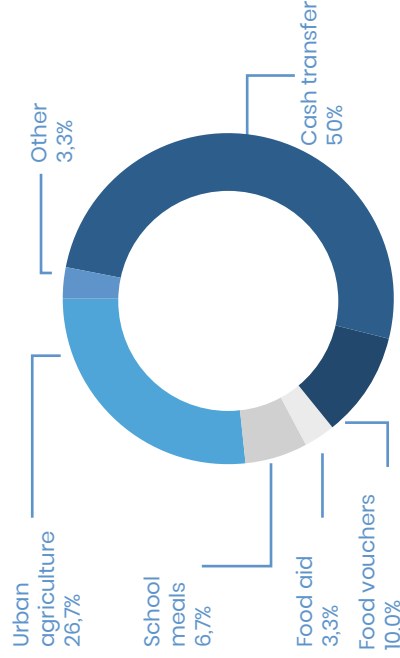
Methods and data sources

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

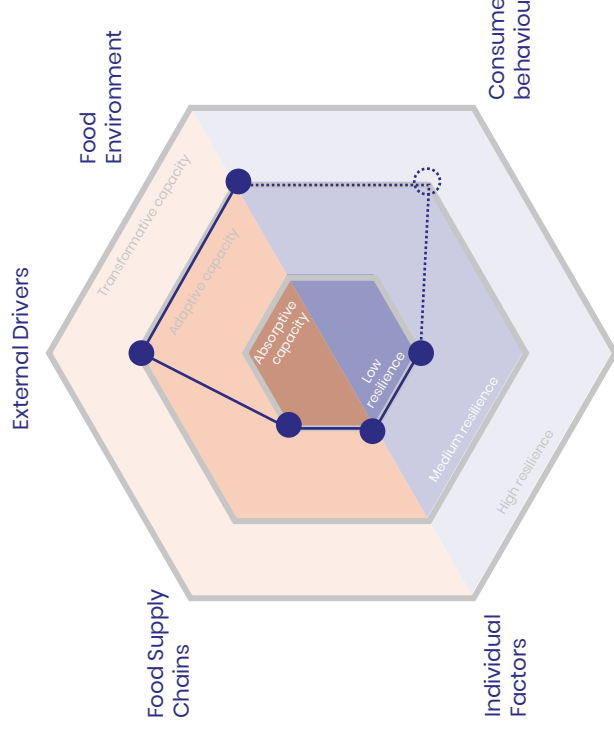


Response by Development Partners to food insecurity



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 GHSL data, Florczyk, A et al. (2018), GHS Urban Centre Database 2015, multitemporal and multidimensional attributes, R2018A, European Commission, Joint Research Centre (JRC) PID: https://data.jrc.ec.europa.eu/dataset/53473144-b88c-44bc-b4c3-4583edff547e

Slum population

Slum census 2014

Cultivated land in 50km radius, km²

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_opcn1_2018_Glob3_2020, Accessed Feb 2020

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