City Region Food System Toolkit
Assessing and planning sustainable city region food systems

CITY REGION FOOD SYSTEM TOOLKIT TOOL/EXAMPLE

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Tool/Example:

Design CRFS assessment and data collection

Author(s): FAO
Project: FAO Food for the Cities

Introduction to the joint programme
This tool is part of the City Region Food Systems (CRFS) toolkit to assess and plan sustainable city region food systems. The toolkit has been developed by FAO, RUAF Foundation and Wilfrid Laurier University with the financial support of the German Federal Ministry of Food and Agriculture and the Daniel and Nina Carasso Foundation.

Link to programme website and toolbox
http://www.fao.org/in-action/food-for-cities-programme/overview/what-we-do/en/
http://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/
http://www.ruaf.org/projects/developing-tools-mapping-and-assessing-sustainable-city-region-food-systems-cityfoodtools

Tool summary:

Brief description	This tool presents how the data collection phase was designed in Lusaka, Kitwe (Zambia) and Colombo (Sri Lanka). It shows in what way the indicator framework was used, and how different data collection tools were selected for area of interest.
Expected outcome	Areas of investigation and data collection tools for CRFS assessment phase.
Expected Output	Identification of areas of investigation and data collection tools.
Scale of application	City region (municipal, district, province)
Expertise required for application	
Examples of application	Colombo (Sri Lanka), Kitwe and Lusaka (Zambia)
Year of development	2016
References	-

Tool description:
Once the different priority areas are defined, the assessment phase can be designed. This tool gives an idea on the different ways in which the assessment and data collection phase can be shaped. The elements to be defined are: research questions or sub-thematics to focus on, related indicators to characterize, appropriate primary data survey tool or secondary data sources. In case of surveys, the type of tool and respondents need to be identified. Kitwe, Colombo and Lusaka used different approaches to design this phase. Colombo and Kitwe used specific indicators (from the indicator framework, available here) as a basis to identify the type of information to collect, to then select the most appropriate data collection tool, if needed, based on secondary information yet available. Lusaka used indicators to monitor progress and give a clearer idea on the achievement of a specific research question.

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Examples of application

Colombo (Sri Lanka)

<u>Identification of relevant indicators</u>

In Colombo, five broad priority areas of the study were selected based on the stakeholder consultation session. Namely, food security, nutrition and safety, Food waste and loss, Value Chain management, climate change and natural resource management and cross city comparison.
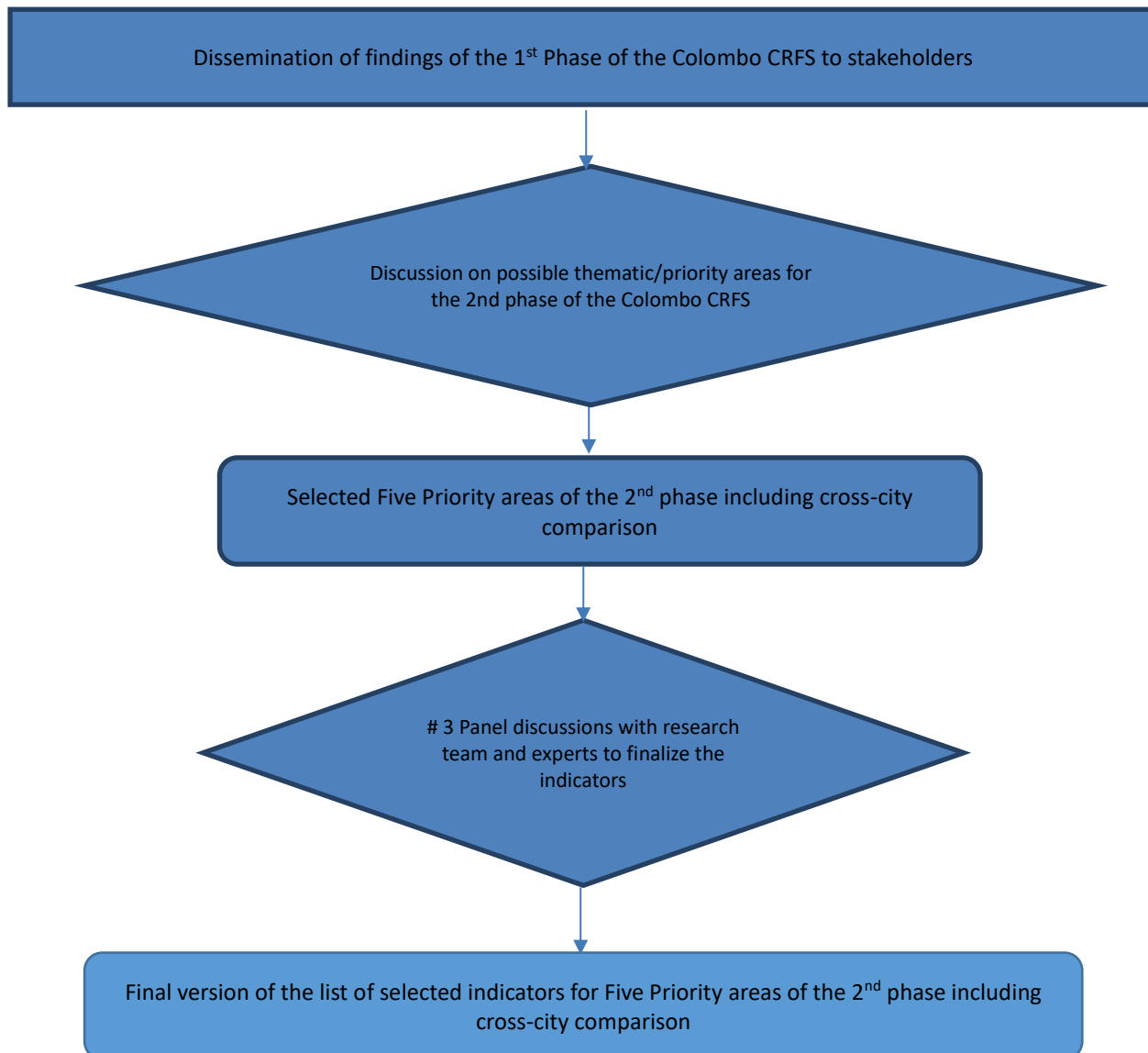
Once the priority areas are selected, multiple expert panel discussions and stakeholder review meetings were conducted to identify the suitable indicators and decide the prioritized food items to be studies for each priority area covering certain number of sub pillars with in the priority area. When selecting the indicators, multiple criteria were taken into consideration, such as applicability of local context, availability of data sources, accessibility for primary and secondary data, and inherent cost, time and other resource constraints.

Dissemination of findings of the 1st Phase of the Colombo CRFS to stakeholders

Discussion on possible thematic/priority areas for the 2nd phase of the Colombo CRFS

Selected Five Priority areas of the 2nd phase including cross-city comparison

3 Panel discussions with research team and experts to finalize the indicators

Final version of the list of selected indicators for Five Priority areas of the 2nd phase including cross-city comparison

Mechanism adapted to decide the final list of indicators for the phase II of the Colombo CRFS
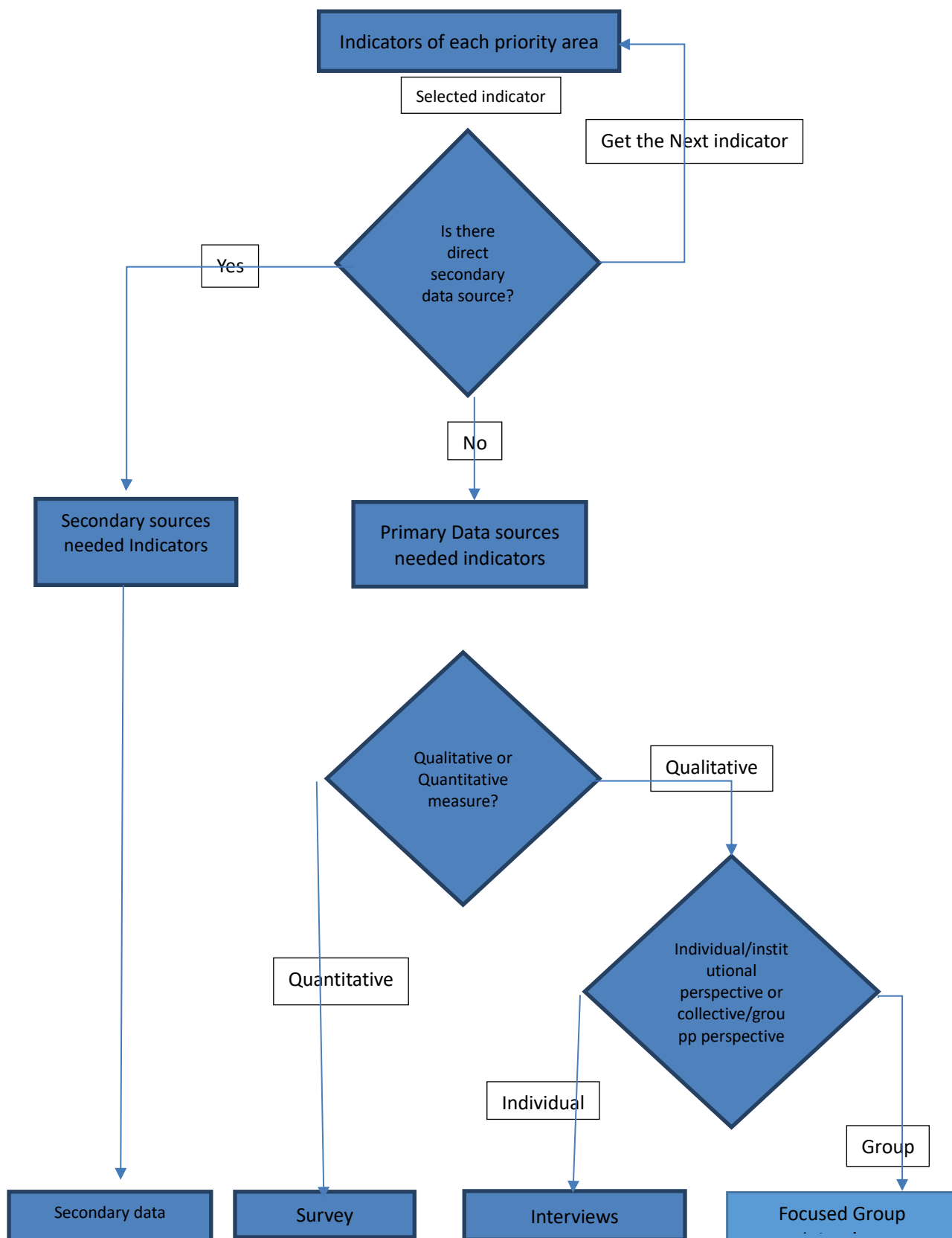
Identification of data collection tool

For each indicator, rapid literature review was conducted in order to identify if primary data collection was needed. The type of survey tool to use for each indicator was then identified based on the nature of the measure.

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Indicators of each priority area

Selected indicator

Get the Next indicator

Is there direct secondary data source?

Yes

No

Secondary sources needed Indicators

Primary Data sources needed indicators

Qualitative or Quantitative measure?

Qualitative

Quantitative

Individual/institutional perspective or collective/group perspective

Individual

Group

Secondary data

Survey

Interviews

Focused Group

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Logical design of the data sources for collecting data

Selected indicators and associated collection tools

➢ *Indicators where secondary data available*

Food security , Nutrition and Safety		
Indicator	**Secondary data source**	**Data available at**
I152 Consumer knowledge on health diets	MoH, Family health bureau	Colombo District Level
I140 Affordability of health/ nutritious food choices	HIES	Colombo District Level
I46 Extent to available agricultural land in city region used	District DS development officers	Colombo District Level
I58 Map of the city to show levels of deprivation or income level	DCS, Sevenatha	Colombo City Level
I149 food consumption patterns (processed and fast food, fruit and vegetables	HIES, officers at DS	Colombo District Level
I147 Total food requirements for the city region	MoH, Nutrition division	Colombo District Level
I62 Food basket price monitoring in the city region	Colombo consumer price index, DCS	Colombo District Level
I150 household Dietary Diversity scores	MRI- Dr. Renuka Jayathissa Director nutria	Colombo City Level
I72 usage level of clean water in food processing	Court cases from CMC	Colombo City Level
I136 Informal food sector monitoring	CMC- Dr Subash	Colombo City Level
I111 sanitation, health and safety employment conditions risk for workers in food retail and catering	Qualitative data- Dr. Subash	
I159 Number of food outbreaks/ food related diseases in city	District data, food outbreaks CMC	Colombo City Level
I178 Food safety & human health	MoH, MRI, ITI, city analysis, government analysis, CAA	Colombo City Level
Food losses and Food Waste		
Indicator	**Secondary data sources**	
I15 Post-harvest losses during food production	MoA, DoA-WP, DoA	Colombo District Level
I62 Post-harvest losses during food storage and processing	Volume, economic value	Colombo District Level
I188 Total volume and percentage of food wasted	SWM dep CMC	Colombo City Level
I190 Total organic waste and wastewater volumes produced	CMC	Colombo City Level
I182 cases of Wasted food used for consumption	Cases- Kala market	Colombo City Level
I183 cases of wasted food further processed	Cases- Kala market	Colombo City Level
I185 Job/ revenue creation in food and organic waste management	CMC	Colombo City Level
I186 Total food and organic waste management labour income	CMC	Colombo City Level
I189 Volumes of wasted food	Landfills CMC	Colombo City Level
I191 Volumes of organic waste recycled	CMC	Colombo City Level
I197 Existence of and support for managing food and organic waste	Janathaksan	Colombo City Level
I198 food solid waste management	Abans environmental service	Colombo City Level
Value Chain Management		
Indicator	**Secondary data sources**	
I2 Availability of local products	MoA-WP	Colombo District Level
I12 Number of urban agriculture producers	MoA-WP	Colombo District Level
I83 Number, type and geographic spread of distribution points	Supermarkets, CWEY	Colombo City Level

I73 Carbon foot prints city region	Carbon consultants, IFC project	Colombo District Level
I137 Diversity in food retail and catering	Restaurant (CMC)	Colombo City Level
I9 Average food price different	CAA, HARTI	Colombo District Level
I148 Consumer food prices for different food products	CAA	Colombo District Level

Climate Change and Natural Resource Management		
Indicator	**Secondary data sources**	
I19 Surface area in city region	MoL	Colombo City Level
I21 Total surface areas of urban, peri urban and rural	MoL, UDA, MoA-WP	Colombo District Level
I24 Quantity of agricultural land	DoA	Colombo City Level
I46 Available agricultural and public land used for growing food	UDA	Colombo City Level
I38 Land use and development plan	WPC- Min.of Agri. & Env.	Colombo City Level
I25 Soil degradation of lands	MoA, CEA	Colombo District Level
I31 water quality and pollution	Marine resources CCD, MEPA	Colombo District Level
I29 Carbon foot print	DoA, HART, CARPE, CCS Estimation	Colombo District Level
I30 Water foot print	MoL, Harti, MoA, CARPE	Colombo District Level
I32 Status of natural biodiversity in the city region	MoE, Dept. of forestry, CEA	Colombo District Level
I53 Vulnerability of food production to climate & disaster risk	DRM- Hazard maps for flooding and droughts	Other Districts Level
I171 Supplying safe food in emergency or natural disaster	DMC unit in GA, Agrarian service dpt.	Other Districts Level
I181 Vulnerability of food consumption to climate & disaster risk	CCS, DMC, MoA-WP	Colombo District Level
I209 extent to which risk reduction and climate adaptation	MoA, CCS, CDM	Colombo District Level

➢ *Indicators where primary data collection needed and related appropriate tool*

Food security , Nutrition and Safety	
Indicator	**Primary Data collection method**
I152 consumer Knowledge on healthy diet	Consumer survey (Knowledge)
I161 consumer awareness of environmental impact of consumption	Consumer survey (Awareness) School survey/focused group discussion
I149 food consumption patterns (processed and fast food, fruit and vegetables	Consumer Survey (consumption)
I150 household Dietary Diversity scores	Consumer survey (dietary diversity)
I1 product volumes coming to city region	Gate survey at Pettah market
I72 usage level of clean water in food processing	Business Owners' Survey
I111 employee sanitation, health and safety	Employee survey or interviews
Food losses and Food Waste	
Indicator	**Primary Data collection method**
I70 food waste production-business level	Business owner's survey
I60 food waste production- consumer/household	Consumer survey (food waste)
I96 food waste production- whole sale and distribution	Business owner's survey
I124 food waste production- retail and catering	Business owner's survey
I182 cases of Wasted food used for consumption	Case study-Observation and interview
I183 cases of wasted food further processed	Case study-Observation and interview
I187 economic value of food thrown away	Business owners' survey
I193 economic value of the energy produced	Energy business owners' interview
I199 share of waste food reuse and shared with needy	Business owners' survey
I200 extent of use of compost for food production	Farmers' survey
I201 increase of employment/income sources in food waste	Interviews/FGD
1210 increase of employment/income sources in food waste	Interviews/FGD

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Value Chain Management	
Indicator	**Primary Data collection method**
190 no of food sellers selling local foods originated in city region	Business Owners' survey/ interview
I119 type of food categories produced in city region	Business owners' survey/interviews
1184 sources of food produced in city region	Business owners' survey/interviews
Climate Change and Natural Resource Management	
Indicator	**Primary Data collection method**
I38 land use and development planning	Interviews with experts
129 carbon foot print	Interviews with experts
161 consumer awareness about environmental effect	Consumer survey (awareness)
1209 extent to which risk reduction and climate adaptation	Interviews with experts

> *Indicators for Policy, Institutional, and Stakeholder Analysis (secondary and primary data needed)*

Food Security and Nutrition
i36. Policies, regulations, and support for and preservation of agricultural land; use of open space/ zoning etc. relevant for the city region
i37. Codes/regulations that allow/promote Urban and peri-urban/city region food production
i133. Policies that require labelling of food origin / food miles etc. in the city region
i134. Policies that support healthy food retail e.g. not allowed to locate fast food outlets near schools; support for fruit and veg shops etc.
i163. Urban/city region food security policies, projects, programmes and targets
i164. Presence of food assistance and subsidy programmes/cash assistance for different vulnerable groups in the city region
i165.Preseence of structures responsible for health and nutrition in the city region
i170. Presence of regulations and systems for transparency and traceability (information the consumer has about the way food is grown, processed and sold; labelling schemes)

Food Safety
i42.Regulations for sustainable use of agri-chemicals and regular farm inspections within the city region
i76. Presence of policies or regulations promoting healthier ingredients / reduction of key ingredients like salt in food processing in the city region
i77. Compliance with food safety regulations and regular inspections related to food storage and processing in the city region
i103. Compliance by city region food wholesale and distribution with food safety regulations and regular inspections
i132. Policies around street food catering and markets e.g. licenses, food safety & hygiene, infrastructure support in the city region
i166. Health and food security regulations and level of application in the city region/Structures for sanitary inspection and notification of health and food security concerns/non-appliance
i168. Policies, codes and regulations that restrict fast food consumption in the city region

Food Waste
i194. Policy and programmes on food waste reduction programs, such as improved post-harvest and storage programmes; consumer education and private sector programmes and incentives etc. in the city region
i195 Policy on food waste recovery programs, such as community composting, food banks, and food scrap processing facilities in the city region
i196. Policies and programmes on waste disposal, recycle, composting programmes/initiatives in city region

Value Chain Management
i35. Food import and trade regulations bearing on city region food production
i75. Presence of policies that encourage city region food storage/processing, such as flexible food regulation and certification policies, and industrial land use planning.
i101. Presence of policies that safeguard city region wholesale and distribution, such as industrial land use planning, protection
i102. Food whole sale distribution regulations bearing on the city region
i129. Nature of public and institutional food procurement policy bearing on city region food production/processing/retail (preference for city region food?)
i170. Presence of regulations and systems for transparency and traceability (information the consumer has about the

way food is grown, processed and sold; labelling schemes)
i202. Presence of action plans/ goals or targets for city region food production and consumption
i206. Degree of recognition of rural-urban linkages in city region food policies, structures and plans
i207. City regional food system planning is happening and supported

Lusaka (Zambia)

In Lusaka, Zambia, different research questions were identified for each of the priority areas. Then, for each research question, the local team identified the activities to be undertaken, making here a difference between review secondary data or collect primary data. A set of indicators were then identified for each research question. It is used as a way to evaluate and monitor rather than guide the CRFS assessment phase.

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Identified prioroties for the city region	Key research questions	Main activities	Methods of data collection and analysis	Indicators
1.0 Sustainable production, resilience of production systems	1.1 Who feeds the city region?	(a) Assess food production in the categories of urban and peri-urban areas	Questionnaire, interviews, Focus group discussion and observation, document analysis	
	1.2 Where does the food come from that is consumed in the city region?	(a) Quantify and locate farmers and farming systems	Questionnaire, interviews, Focus group discussion and observation, document analysis	i11. Number of producers in city region (for different products) and their farm size operations
				i45. Diversity in food provisioning (consumption) sources for the city region i.e. how many sources of food production the city region has (city region, national, international etc)
		(b) Map main production areas of key commodities	Questionnaire, interviews, Focus group discussion and observation, document analysis	i1. Product volumes and diversity imported (from outside the city region) compared with product volumes from the city region
				i19. Surface (or percentage) area in city region per type of crop/product
	1.3 How much food is produced locally in the city region?	(a) Map and Quantify Crop and livestock types & yields.	Questionnaire, interviews, Focus group discussion and observation, document analysis	i19. Surface (or percentage) area in city region per type of crop/product
				i1. Product volumes and diversity imported (from outside the city region) compared with product volumes from the city region
				i21. Total surface areas (current and potentially available currently unfarmed) of urban and peri-urban and rural agriculture land within the city region
				i22. Amount of land protected for agriculture/livestock within the city region
				i5. Access to land and secure ownership /tenure arrangements for food production in the city region for various types of producers
	1.4 Where are inputs and resources needed for city region food production sourced from?	(a) Assess access to inputs (pesticides, fertilizers, seeds, farming implements)	Questionnaire, interviews, Focus group discussion and observation, document analysis	No indicator
	1.5 Is there land available for agricultural purposes in the city region?	(a) Review existing legal framework on land accessibility and availability	Document analysis	i21. Total surface areas (current and potentially available currently unfarmed) of urban and peri-urban and rural agriculture land within the city region
				i46. Extent to which available agricultural and public/open land in the city region is used for growing food
	1.6 What is the potential production capacity of the	Collect existing land use datasets for all the districts		i1. Product volumes and diversity imported (from outside the city region) compared with product volumes from the city region

	city region to feed its populations?	defining the CRFS : land use; map, agricultural land use map, mapping of the production areas of the key commodities	Questionnaire, interviews, Focus group discussion and observation, document analysis	i21. Total surface areas (current and potentially available currently unfarmed) of urban and peri-urban and rural agriculture land within the city region
				i46. Extent to which available agricultural and public/open land in the city region is used for growing food
	1.7 What is the capacity of the CRFS to provide sufficient agricultural diversification?	Assess agricultural practices: Such as Land preparation techniques; Land maintenance between seasons; Crop rotation and mixed cropping; Crop Insurance, Irrigation and water sources	Questionnaire, interviews, Focus group discussion and observation, document analysis	i20. Agricultural practices (Area in the city region under organic/conservation agriculture/conventional production or under specific production practices)
	1.8 What are the key practices that contribute to unsustainable production?	(a)Review data and studies on quality of natural resources (forest, soil and water).	Document analysis, interviews with key informants	i20. Agricultural practices (Area in the city region under organic/conservation agriculture/conventional production or under specific production practices)
				i25.Soil degradation (loss of chemical and physical soil fertility) of lands with the city region
				i31. Water quality and pollution surface/ground water and marine resources (for coastal cities) in the city region
		(b) Assess implications of climate shocks affecting farmers	Document analysis, interviews with key informants	i53. Vulnerability of city region food production to climate and disaster risks
	1.9 What is the effect of population growth on food production & the environment?	Assess the relationship between population growth, food production and the environment	Document analysis, interviews with key informants	
	1.10 Is the city region able to feed itself in times of crises	Assess implications of climate shocks on farming	Questionnaires, FGDs, interviews, document analysis	i209. Extent to which risk reduction and climate adaptation/mitigation measures for food production, transport and distribution are put in place/existence of a disaster risk reduction management plan in the city region
				i171. Extent to which provision is made for supplying safe food in case of emergency or natural disaster
2.0 Food processing, supply and distribution system	2.1 Is there adequate supply and distribution of infrastructures along the	Map supply and distribution infrastructures along the value chains: roads, storage facilities, processing and	Questionnaires, FGDs, interviews, and observation	i54. Type, number and geographic spread of food storage/processing/manufacturing businesses in the city region
				i83. Number, type and geographic spread of food wholesale/distribution points in the city region (for different products)

	value chains? (roads, storage facilities etc)	manufacturing plants, wholesale markets, food retail markets (supermarkets, informal markets, etc.)		i109. Type, number and geographic location/spread of different food retail outlets in the city region
				i110. Type, number and geographic location/spread of different food catering outlets in the city region
				i65. Levels of infrastructure and equipment provision for improved businesses efficiency in city region food storage/processing
				i92. Infrastructure needs for improved city region wholesale and distribution businesses efficiency
				i121.Infrastructure needs for city region food i) retail and ii) catering businesses (e.g. market stalls, clean water etc.)
	2.2 Who are the main stakeholders involved in the processing, supply and distribution system?	Map and quantify stakeholders/actors involved at every stage of each of the main commodities' value chain	Questionnaire, interviews, FGDs , document analysis, observation, and mapping	No indicators
	2.3 How are food losses and waste handled throughout the value chain?	Estimate food losses and waste from major markets, transports and logistics and from households as well as food management).	Questionnaire, interviews, FGDs , document analysis, observation, and mapping	i188. Total volume and percentage of food wasted along the food chain in the city region
				i96. Food waste production/losses (volumes/share/economic value) and management in city region wholesale and distribution
				i.124 Food waste production (volumes/share/economic value) and management in city region food i) retail and ii) catering
				i160. Food waste production (volumes/share/economic value) and management at the level of consumers in the city region
				i191.Volumes/percentage of organic waste in the city region i) recycled; ii) dumped in landfill or otherwise disposed; iii) used in city region agriculture (specify for different forms of management)
	2.4 Who supplies the food to businesses/markets that sell food to the consumers?	Map and quantify stakeholders/actors involved at every stage of each of the main commodities' value chain;	Questionnaire, interviews, FGDs , document analysis, observation, and mapping	i54. Type, number and geographic spread of food storage/processing/manufacturing businesses in the city region
				i83. Number, type and geographic spread of food wholesale/distribution points in the city region (for different products)
				i109. Type, number and geographic location/spread of different food retail outlets in the city region
				i110. Type, number and geographic location/spread of different food catering outlets in the city region
				i79. Diversity in provisioning sources for food storage/processing industry in the city region
				i84 Sources of food products that are sold wholesale or distributed in the city region.
				i117. Total number of city region retail and catering outlets buying directly from farms in the city region

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	2.6 Can the city region food marketing, catering and retail sector be expanded and diversified?	Analyze storage facilities, wholesale markets, retail markets, catering facilities and informal market in relation to type, capacity and quality	Questionnaire, interviews, FGDs , document analysis, observation, and mapping	i109. Type, number and geographic location/spread of different food retail outlets in the city region
				i110. Type, number and geographic location/spread of different food catering outlets in the city region
				i116. Types and value of different city region marketing channels (regular and alternative channels)
				i121.Infrastructure needs for city region food i) retail and ii) catering businesses (e.g. market stalls, clean water etc.)
				i132. Policies around street food catering and markets eg licenses, food safety & hygiene, infrastructure support in the city region
	2.7 Can more value be added (jobs; income; other multiplier effects) by enhancing city region food processing, supply and distribution?	Analyze employment and Level of wages paid, competition between local and imported product, and role of middle men	Questionnaire, interviews, FGDs , document analysis, observation, and mapping	i57. Number and type of people (please differentiate for women, young people and other vulnerable groups) involved in city region food processing
				i86. Number and type of people (differentiate for of women, young people and other vulnerable groups involved) in city region food wholesale & distribution
				i112. Number and type of people (differentiate for women, young people and other vulnerable groups involved in city region food i) retail and ii) catering
				i56. Sanitation, health and employment conditions and risks related to food processing within the city region
				i85. Sanitation, health and employment conditions and risks for workers in the food wholesale and distribution sector in the city region
				i111. Sanitation, health and safety employment conditions and risks for workers in food retail and catering in the city region
				i91. Presence and role of middle men in food wholesale and distribution in the city region
3.0 Consumption, food security and nutrition	3.1 What do people in the city region eat?	Analyze the most consumed commodities in the CRFS in terms of meat products, dairy, fruits, vegetables and staples (food demand) : quantity and quality	Document analysis, questionnaire, interviews, FGDs	
	3.2 What is the composition of their actual diet and food basket?	Analyze the most consumed commodities in the CRFS in terms of meat products, dairy, fruits,	Document analysis, questionnaire, interviews, FGDs	i146. Total food consumption for the population in the city region. (Household food baskets/consumption figures for specific food products multiplied by number of population). *If possible, differentiate within categories: e.g. children, adolescents, adults and elderly*

	vegetables and staples (food demand) : quantity and quality		i149. Trends in/patterns of food consumption and expenditures for different types of consumers in the city region(e.g. consumption of consumer processed and fast food consumption; fruit and vegetable intake)
3.3 What are the different diets existing by social, economic and cultural groups?	Analyze what people consume by social, economic, and cultural groups	Questionnaire, interviews, FGDs	i149. Trends in/patterns of food consumption and expenditures for different types of consumers in the city region(e.g. consumption of consumer processed and fast food consumption; fruit and vegetable intake)
			i146. Total food consumption for the population in the city region. (Household food baskets/consumption figures for specific food products multiplied by number of population). *If possible, differentiate within categories: e.g. children, adolescents, adults and elderly*
3.4 What is the nutritional and food security status of the CRFS's dwellers?	Review existing information and collect data on malnutrition and food insecurity	Questionnaire, interviews, FGDs	i150. Number and percentage of food insecure HH in the city region/Dietary diversity scores for different types of consumers in the city region (Note dietary diversity scores will give information on specific food intake including fruits and vegetables/proteins/ calories etc)
			i151. Nutritional status and rate of diet related diseases (malnutrition/Obesity/ others) for different income groups and age classes in the city region/ for rural-urban areas (Note this can be further specified if data area available in terms of: -Percentage of stunting in children -Percentage of people overweight or malnourished in specific age classes; etc.)
3.5 What are the drivers of food insecurity and malnutrition?	Investigate causes of food insecurity and malnutrition	Questionnaire, interviews, FGDs , and observation	Not possible to assess/monitor with indicators
3.6 What is the spatial correlation between food insecurity and physical/economic access to food?	Analyze Spatial analysis to correlate food insecurity and access to food retail.	Document analysis, mapping	i158. Map of the city to show levels of deprivation or income levels for different types of consumers across different areas in the city region
			i150. Number and percentage of food insecure HH in the city region/Dietary diversity scores for different types of consumers in the city region (Note dietary diversity scores will give information on specific food intake including fruits and vegetables/proteins/ calories etc)
			i151. Nutritional status and rate of diet related diseases (malnutrition/Obesity/ others) for different income groups and age classes in the city region/ for rural-urban areas (Note this can be further specified if data area available in terms of: -Percentage of stunting in children -Percentage of people overweight or malnourished in specific age classes; etc.)
			i162. Food basket price monitoring in the city region
3.7 How can city region food security, availability, safety, appropriateness, utilization	Assess quality and diversity of the food available; Assess knowledge and awareness	Questionnaire, interviews, FGDs , and observation	i177. Food quality: Extent to which low income residents have access to/can afford local, safe, nutritious/healthy food in different areas in the city region (Note: using data from dietary diversity scores and food intake indications can be given on specific food intake and deficiencies)

	and transparency be enhanced?	on sustainable and healthy diets.		i153. Food choice: percentage of city region population (per wealth class; children) eating more than 5 fruits and vegetables a day/ Average intake of fruits and vegetables for different types of consumers
				i167. Existence and support for public health and nutrition education efforts in the city region
				i152. Consumer knowledge on healthy diets (for different consumer groups in the city region)
				i161. Consumer awareness of environmental impacts of their consumption; city regional food; healthy food; safe food

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Kitwe (Zambia)

In Kitwe, Zambia, a total of 32 indicators were identified to drive the CRFS assessment phase within the 3 identified priority areas: Agricultural Production, Food Processing and Distribution, and Environment and Natural Resources Degradation. Data collection tools and secondary data sources were then identified for each indicator, associated with specific questions to ask to get the relevant information or data. Indicators were used here to drive and give direction to the assessment phase.

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Priority area	Areas of work	Indicators	Survey tool	Target/source	Questions to be asked (refers to survey questionnaires)
1. Agricultural production: land availability, access and tenure; competition between urban development and agriculture; production and productivity issues (including retail but outside Kitwe district)	Diversity of Opportunities for Food Production	i1. Product volumes and diversity imported (from outside the city region) compared with product volumes from the city region	Key informant interviews	CSO/Chamber of Commerce/MoA	i1a. Names of vegetables, fruits, livestock & dairy commodities imported (name_____; up to 20 answers)
					i1b. Quantity of each vegetable, fruit, livestock & dairy commodity that is imported (name_____quantity_____; up to 20 answers)
					i1g. Names of livestock products imported (name_____quantity_____; up to 10 answers)
			Survey questionnaires	Producers (Farmers / poultry / livestock)/Households	1a. Enumerator id
					1b. Date
					1c. District
					1d. Village
					1e. Farmblock
					1f. Type of housing: open area_ironsheet_brickhouse_thatch_temporal
					1g. Total number of people in household
					1h. Total children 0-5 years
					1i. Total children 6-17 years
					1j. Total adults 18-55 years
					1k. Total adults 56-65 years
					1l. Total elderly above 66
					1m. Gender HH
					1n. Provider of household income (i.e. male %, female %)
					1o. Education attainment (i.e. none, primary, secondary, college, university)
					1p. How many of 6-17 year children are in school or finished school
					1q. How long has household been in this area?
					1r. Where did your household come from? (i.e. same area_other settlement/neighbourhood_rural area outside city_nearest city_other distant city)
					1s. What is the main source of household income?
					1t. Why did household move into this area? (i.e. bought farmland_conflict/insecurity_drought_employment_assistance_pension_redundancy_lived here_other)

				1u. Main source of drinking water (i.e. piped private_piped communal_protected well_unprotected well_borehole_purchase water_bottled water_other)
				1v. Type of toilet facility used by household (i.e. simple pit latrine_ventilated latrine_flush toilet_no toilet_other)
				1w. Where is your waste disposed of? (i.e. garbage dump_disposal service_roadside_burning_other)
				1x. Which type of cooking fuel do you use? (i.e. charcoal_firewood_grass_cowdung_paraffin_gas_solar_other)
	i2. Number/type of farms in the city region that use locally grown or other (organic/ecological/ fair-trade) product labels	Survey questionnaires	Producers (Farmers / poultry / livestock)	i2a. Number of farms using locally grown or other products labes (organic/ecological/fair-trade)
				i2b. Type of farms using locally grown or other products labes (organic/ecological/fair-trade)(Text)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i2a. Number of farms using locally grown or other products labes (organic/ecological/fair-trade)
				i2b. Type of farms using locally grown or other products labes (organic/ecological/fair-trade) (text)
	i4. Number/% of farms in the city region with direct sales to consumers; trading direct at markets or selling direct to retailers or caterers	Survey questionnaires	Producers (Farmers / poultry / livestock)	i4a. Number or % of farms with direct sales to consumers/do you sell directly to consumers(yes/no)
				i4b. Number or % of farms trading direct at markets/do you trade directly at markets (yes/no)
				i4c. Number or % of farms selling direct to retailers/do you sell direct to retailes (yes/no)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i4a. Number or % of farms with direct sales to consumers
				i4b. Number or % of farms trading direct at markets
				i4c. Number or % of farms selling direct to retailers
Social Conditions for Food Producers	i5. Access to land and secure ownership /tenure arrangements for food production in the city region for various types of producers	Survey questionnaires	Producers (Farmers / poultry / livestock)	i5a. Do you have access to land which you are using (yes/no)
				i5b. Who owns the land that you use (self/cooperative/rented/other/unknown)
	i6. Number and type/characteristics of people (differentiate for women, young people and other vulnerable groups) involved in city region food production	Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i6a. Number of women involved in city region food production
				i6b. Number young people involved in city region food production
				i6c. Number other vulnerable groups involved in city region food production
	i7. Number of children under age (child labour) employed in city region food production	Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i7a. Number of children employed in input supply for food production in city region
				i7b. Number of children employed in farm activities for food production in city region

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Economic Value of Food Production Sector in the City Region	i9. Average food price data for different food products/commodities (value of city region food production vs. total value of food imported) Note: if possible compare farm gate and retail prices for selected commodities.	Survey questionnaires	Producers (Farmers / poultry / livestock)	i9a. Average farmgate price for commodity (name_____number(price)_____)
				i9w. Average farmgate price for imported commodity:
	i10. Number (or percentage) of farms (farm types) in the city region (economic vitality) for different food products	Survey questionnaires	Producers (Farmers / poultry / livestock)	i10a. Number or percentage of farm types that produce specific commodities
				i10c. What is the size of farm that produce particular commodity (commodity_____size in acres_____)
		Key informant interviews	CSO/Chamber of Commerce/MoA	i10a. Number or percentage of farm types that produce each commodity (number)
				i10c. What is the size of farms that produce each commodity (number in acres)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i10a. Number or percentage of farm types that produce each commodity
				i10c. What is the size of farms that produce each commodity (number in acres)
Status of Natural Resource Management	i21. Total surface areas (current and potentially available currently unfarmed) of urban and peri-urban and rural agriculture land within the city region	Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i21a. Total surface areas currently unfarmed of urban and peri-urban and rural agriculture land within the region (number in acres)
				i21b. Total surface areas currently unfarmed of peri-urban land within the region (number in acres)
				i21c. Total surface areas currently unfarmed rural agriculture land within the region (number in acres)
				i21d. Total surface areas potentially available currently unfarmed of urban land within the region (number in acres)
				i21e. Total surface areas potentially available currently unfarmed peri-urban land within the region (number in acres)
				i21d. Total surface areas potentially available currently unfarmed rural agriculture land within the region (number in acres)
	i32. Status of natural biodiversity in the city region	Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i32a. What is the status of natural biodiversity in the city region (intact/degraded/unknown)
				i32b. What drives the change in the status of natural biodiversity in the city region (farming/mining/settlements/
				i32c. Who manages the natural biodiversity in the city region (text)
		Policy and documents analysis	Councils/MoA/KDLA/Forestry/ZEMA/ZNFU/Water &Sewarage	i32a. What is the status of natural biodiversity in the city region (intact/degraded/unknown)
				i32b. What drives the change in the status of natural biodiversity in the city region (farming/mining/settlements/

	i37. Codes/regulations that allows/promote urban and periurban/city region food production	Policy and documents analysis	Councils/MoA/KDLA/Forestry/ZEMA/ZNFU/Water &Sewarage	i37a. National policies that allow/promote urban and peri-urban food production (paper)
				i37b. Local or regional policies that allow/promote urban and peri-urban food production (paper)
				i37c. National legislations/laws that allow/promote urban and peri-urban food production (paper)
				i37d. Local or regional legislations/laws that allow/promote urban and peri-urban food production (paper)
Levels of Vulnerability and Conditions for Increasing Resilience	i44. Percentage of self-reliance (for the city region) in consumption of food by weight for specific product/prioritised food basket/total nutritional requirements or total consumption (possibly transform this also in food expenditures using average food price data)	Survey questionnaires	Producers (Farmers / poultry / livestock)	i44a. Percentage of commodity produced and consumed within the region out of total available (name1_____% consumed within_____)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i44a. Percentage of commodity produced and consumed within the region out of total available
	i47. Availability and accessibility of Urban agriculture/community gardens to all residents within the city region; especially of low-income	Survey questionnaires	Producers (Farmers / poultry / livestock)	i47a. How much land is available of urban agriculture/community gardens to all residents within the city region for low-income groups (in acres)
				i47b. How accessible is land available of urban agriculture/community gardens to all residents within the city region for low-income groups (Available/Unavailable/Available but inadequate/Unknown)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i47a. How much land is available of urban agriculture/community gardens to all residents within the city region for low-income groups (number or %)
				i47b. How accessible is land available of urban agriculture/community gardens to all residents within the city region for low-income groups (accessible/inaccessible/unknown)
	i49. Potential for increase in decent employment and income opportunities (multiplier effect) in city region food production and input supply	Key informant interviews	CSO/Chamber of Commerce/MoA	i49a. What is the potential for increase in decent employment (multiplier effect) in food production and input supply (number in % increase)
				i49b. What is the potential for increase in income opportunities (multiplier effect) in food production and input supply (number in % increase)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i49a. What is the potential for increase in decent employment (multiplier effect) in food production and input supply (% increase)
				i49b. What is the potential for increase in income opportunities (multiplier effect) in food production and input supply (% increase)
	i50. Extent to which production practices favour efficient use of abiotic resources (land/soil; water; nutrients)	Survey questionnaires	Producers (Farmers / poultry / livestock)	i50a. Extent to which production practices favour efficient use of land (High/medium/low/unknown)
				i50b. Extent to which production practices favour efficient use of water (High/medium/low/unknown)
				i50c. Extent to which production practices favour efficient use of soil fertility/nutrients (High/medium/low/unknown)

		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i50a. Extent to which production practices favour efficient use of land (high/medium/low/unknown)
				i50b. Extent to which production practices favour efficient use of water (high/medium/low/unknown)
				i50c. Extent to which production practices favour efficient use of soil fertility/nutrients (high/medium/low/unknown)
	i52. Degree to which livestock feed is produced within the city region (% of self-reliance in fodder production)	Survey questionnaires	Producers (Farmers / poultry / livestock)	i52a. Where is feed for livestock type obtained/bought from? (name of feed_____source_____)
				i52b. How much does a kilogram of feed category cost? (name of feed_____price/Kg_____)
				i521a. Mention commodities that are produced on the facility (text - up to 20 answers)
				i521b. Where do you obtain/purchase your seed for each of the commodity? (text - up to 20 answers)
				i521c. How much does (a Kg or packet of 500g) seed cost for each commodity? (name_____cost/Kg_____; 20 answers)
				i521d. What fertilisers do you use for each of the crops you produce? (name_____fertiliser_____; 15 answers)
				i521e. Where do you obtain/purchase your fertiliser from? (text - up to 15 answers)
				i521f. How much does a kilogram or 50 Kg bag of fertiliser cost? (fertiliser_____cost/50Kg_____; up to 5 answers)
				i521g. Where do you obtain your farm equipment from? (equipment_____source_____; up to 10 answers)
				i521h. What is the total cost of equipment required to produce each commodity that you produce? (commodity_____equipment cost_____; up to 20 answers)
		Key informant interviews	Councils / MoA / ZLA / Forestry / ZEMA / ZNFU / Water & Sewerage	i52a. Where is feed for livestock type obtained/bought from? (name of feed_____source_____)
				i52b. How much does a kilogram of feed category cost? (name of feed_____price/Kg_____)
				i521a. Mention commodities that are produced on the facility (text - up to 20 answers)
				i521b. Where do you obtain/purchase your seed for each of the commodity? (text - up to 20 answers)
				i521c. How much does (a Kg or packet of 500g) seed cost for each commodity? (name_____cost/Kg_____; 20 answers)
				i521d. What fertilisers do you use for each of the crops you produce? (name_____fertiliser_____; 15 answers)
				i521e. Where do you obtain/purchase your fertiliser from? (text - up to 15 answers)
				i521f1. How much does a kilogram or 50 Kg bag of top dressing fertiliser cost? (fertiliser_____cost/50Kg_____; up to 5 answers)

					i521f2. How much does a kilogram or 50 Kg bag of basal fertiliser cost? (fertiliser_____cost/50Kg_____; up to 5 answers)
					i521g. Where do you obtain your farm equipment from? (equipment_____source_____; up to 10 answers)
					i521h. What is the total cost of equipment required to produce each commodity that you produce? (commodity_____equipment cost_____; up to 20 answers)
2. Food processing, supply and distribution system (including consumption & nutrition but outside Kitwe district)	Number and diversity of food processing businesses	i54. Type, number and geographic spread of food storage/processing/manufacturing businesses in the city region	Policy and documents analysis	CSO / MoH / Council	i54i. Number and type of commodity storage businesses in the city region (key informants-sec data)
					i54ii. Geographic spread of commodity storage businesses in the city region (mapping of location: georeferencing)
	Economic Value of Food Production Sector in the City Region	i9. Average food price data for different food products/commodities (value of city region food production vs. total value of food imported) Note: if possible compare farm gate and retail prices for selected commodities.	Survey questionnaires	Marketeers / Traders	i9b. Average retail (market) price for locally produced commodity (commodity_____market price_____; up to 20 answers)
	Presence and Impact of Related Policy	I77. Compliance with food safety regulations and regular inspections related to food storage and processing in the city region	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	I77a. Compliance with food safety regulations related to food storage in the city region (high/medium/low/unknown)
					I77b. Compliance with food safety regulations related to food processing in the city region (high/medium/low/unknown)
					I77c. Compliance with regular inspections of food storage facilities in the city region (high/medium/low/unknown)
					I77d. Compliance with regular inspections of food processing facilities in the city region (high/medium/low/unknown)
		i177. Food quality: Extent to which low income residents have access to/can afford local, safe, nutritious/healthy food in different areas in the city region (Note: using data from dietary diversity scores and food intake indications can be given on specific food intake and deficiencies) (food security)	Policy and documents analysis	CSO / MoH / Council	i77i. Compliance with food safety regulations related to food storage in the household (high/medium/low/unknown)
					i77ii. Are there regular inspections of food storage facilities in the household (daily/weekly/month/biannual/annual/none)
					i77iii. Compliance with regular inspections of food storage facilities in the household (yes/no)
		i132. Policies around street food catering and merkets eg			i132a. Policies governing street food catering in the city region in terms of licences (paper - policy review)

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license, food safety and hygiene, infrastructure support in the city region				i132b. Policies governing street food catering in terms of food safety & hygiene in the city region (paper - policy review)
				i132c. Policies governing street food catering in terms of infrastructure support in the city region (paper - policy review)
				i132d. Policies governing street food markets in the city region in terms of licences (paper - policy review)
				i132e. Policies governing street food markets in terms of food safety & hygiene in the city region (paper - policy review)
				i132f. Policies governing street food markts in terms of infrastructure support in the city region (paper - policy review)
		Policy and documents analysis	CSO/CHAMBER OF COMMERCE/MoA/MoH/ COUNCILS	i132a. Policies governing street food catering in the city region in terms of licences (paper - policy review)
				i132b. Policies governing street food catering in terms of food safety & hygiene in the city region (paper - policy review)
				i132c. Policies governing street food catering in terms of infrastructure support in the city region (paper - policy review)
				i132d. Policies governing street food markets in the city region in terms of licences (paper - policy review)
				i132e. Policies governing street food markets in terms of food safety & hygiene in the city region (paper - policy review)
				i132f. Policies governing street food markts in terms of infrastructure support in the city region (paper - policy review)
Levels of Vulnerability and Conditions for Increasing Resilience	i81. Potential for increase in decent employment and income opportunities (multiplier effect) in city region food wholesale and distribution	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i81a. Potential for increase in decent employment opportunities (multiplier effect) in city region food storage (high/medium/low/unknown)
				i81b. Potential for increase in income opportunities (multiplier effect) in city region food storage (high/medium/low/unknown)
				i81c. Potential for increase in decent employment opportunities (multiplier effect) in city region food processing and manufacturing (high/medium/low/unknown)
				i81d. Potential for increase in income opportunities (multiplier effect) in city region food processing and manufacturing
	i137. Diversity in food retail and catering in the city region (for selected food products)	Policy and documents analysis	CSO / MoH / Council	i137i. Number and type of vegetable retail and catering in the city region
				i137ii. Number and type of beef retail and catering in the city region
				i137iii. Number and type of fish retail and catering in the city region
				i137iv. Number and type of fruit retail and catering in the city region
				i137v. Number and type of fruit products retail and catering in the city region
				i137vi. Number and type of milk and milk products (cheese) retail and catering in the city region

				i137vii. Number and type of poultry products retail and catering in the city region
Diversity of Opportunities for Food Wholesaler and Distribution Businesses	i83. Number, type and geographic spread of food wholesale/distribution points in the city region (for different products)	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i83a. Number and type of wholesale and distribution points in the city region for each commodity (category_____number_____; up to 5 answers)
				i83b. Number and type of commodity wholesale points in the city region (category_____number_____; up to 5 answers)
				i83c. Number and type of commodity distribution points in the city region(category_____number_____; up to 5 answers)
				i83d. Geographic spread of of commodity wholesale and distribution points in the city region (mapping of location: georeferencing)
		Survey questionnaires	Marketeers / Traders	i83a. Number and type of wholesale and distribution points in the city region for each commodity (category_____number_____; up to 5 answers)
				i83b. Number and type of commodity wholesale points in the city region (category_____number_____; up to 5 answers)
				i83c. Number and type of commodity distribution points in the city region (category_____number_____; up to 5 answers)
				i83d. Geographic spread of commodity wholesale and distribution points in the city region (mapping of location: georeferencing)
Economic Conditions for Food Wholesale and Distribution Workers	i92. Infrastructure needs for improved city region wholesale and distribution businesses efficiency	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i92e. State of existing wholesale and distribution infrastructure (i.e. excellent, good, poor, not existing, unknown)
		Survey questionnaires	Producers (farmers / poultry / livestock)	i92a. Infrastructure needs for improved city region wholesale businesses efficiency (i.e. high, medium, low, unknown)
				i92b. Infrastructure needs for improved city region distribution businesses efficiency (i.e. high, medium, low, unknown)
				i92c. Infrastructure needs for improved city region wholesale and distribution businesses efficiency (i.e. high, medium, low, unknown)
				i92d. Infrastructure needs related improvement to existing wholesale and distribution businesses or new (i.e. existing, new, uncertain)
				i92e. State of existing wholesale and distribution infrastructure (i.e. excellent, good, poor, not existing, unknown)
				i92f. Geographic spread of roads, storage, wholesale & distribution infrastructure (for mapping)
		Survey questionnaires	Marketeers / Traders	i92e. State of existing wholesale and distribution infrastructure (i.e. excellent, good, poor, not existing, unknown)
Levels of Vulnerability and Conditions for	i104. Transport efficiency: Current and potential use of food transport and storage in city region with low energy use / more optimised distribution –	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i104a. Current use of food transport in city region with low energy use (high/medium/low/unknown)
				i104b. Potential use of food transport in city region with low energy use (high/medium/low/unknown)
				i104c. Current use of food transport in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)

Increasing Resilience	reduction of transport distance and emissions			i104d. Potential use of food transport in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
				i104e. Current use of food storage in city region with low energy use (high/medium/low/unknown)
				i104f. Potential use of food storage in city region with low energy use (high/medium/low/unknown)
				i104g. Current use of food storage in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
				i104h. Potential use of food storage in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
		Survey questionnaires	Marketeers / Traders	i104a. Current use of food transport in city region with low energy use (high/medium/low/unknown)
				i104b. Potential use of food transport in city region with low energy use (high/medium/low/unknown)
				i104c. Current use of food transport in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
				i104d. Potential use of food transport in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
				i104e. Current use of food storage in city region with low energy use (high/medium/low/unknown)
				i104f. Potential use of food storage in city region with low energy use (high/medium/low/unknown)
				i104g. Current use of food storage in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
				i104h. Potential use of food storage in city region with more optimised distribution – reduction of transport distance and emissions (high/medium/low/unknown)
	i107. Potential for increase in decent employment and income opportunities (multiplier effect) in city region food wholesale and distribution	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i107a. Potential for increase in decent employment opportunities (multiplier effect) in city region food wholesale and distribution (% increase)
				i107b. Potential for increase in decent employment opportunities (multiplier effect) in city region food wholesale (% increase)
				i107c. Potential for increase in decent employment opportunities (multiplier effect) in city region food distribution (% increase)
				i107d. Potential for increase in income opportunities (multiplier effect) in city region food wholesale and distribution (% increase)
				i107e. Potential for increase in income opportunities (multiplier effect) in city region food wholesale (% increase)
				i107f. Potential for increase in income opportunities (multiplier effect) in city region food distribution (% increase)
	i144. Availability of local and traditional crops and products	Survey questionnaires	Households	i144a. Availability of local and traditional crops for residents from the low cost class in the city region (yearly, seasonally, none, unknown)

	for residents from different wealth classes in different areas of the city region			i144b. Availability of local and traditional crops for residents from the medium cost class in the city region (yearly, seasonally, none, unknown)
				i144c. Availability of local and traditional crops for residents from the high cost class in the city region (yearly, seasonally, none, unknown)
				i144d. Availability of local and traditional agro-products for residents from the low cost class in the city region (yearly, seasonally, none, unknown)
				i144e. Availability of local and traditional agro-products for residents from the medium cost class in the city region (yearly, seasonally, none, unknown)
				i144f. Availability of local and traditional agro-products for residents from the high cost class in the city region (yearly, seasonally, none, unknown)
	i177. Food quality: Extent to which low income residents have access to/can afford local, safe, nutritious/healthy food in different areas in the city region (Note: using data from dietary diversity scores and food intake indications can be given on specific food intake and deficiencies) (food security)	Survey questionnaires	Households	I77a. Compliance with food safety regulations related to food storage in the household (high/medium/low/unknown)
				I77b. Are there regular inspections of food storage facilities in the household (daily/weekly/month/biannual/annual/none)
				I77c. Compliance with regular inspections of food storage facilities in the household (yes/no)
Diversity of Opportunities for Consumers to Eat Well	i147. Total food/nutritional requirements for the population in the city region. (Household food nutrition requirements multiplied by number of city region population). May be specified for specific food products If possible, differentiate within categories. e.g. children, adolescents, adults and elderly	Key informant interviews	MoH	i147a. Total monthly beef/pork/chicken requirements for children under 5 in the household
				i147b. Total monthly beef/pork/chicken requirements for adolescents in the household
				i147c. Total monthly beef/pork/chicken requirements for adults in the household
				i147d. Total monthly beef/pork/chicken requirements for the elderly in the household
				i147i. Total monthly eggs requirements for children under 5 in the household
				i147j. Total monthly eggs requirements for adolescents in the household
				i147k. Total monthly eggs requirements for adults in the household
				i147l. Total monthly eggs requirements for children under 5 in the household
				i147m. Total monthly eggs requirements for elderly in the household
				i147n. Total monthly milk requirements for adolescents in the household
				i147o. Total monthly milk requirements for children under 5 in the household
				i147p. Total monthly milk requirements for adults in the household

					i147q. Total monthly milk requirements for elderly in the household
					i147r. Total monthly vegetable requirements for children under 5 in the household
					i147s. Total monthly vegetable requirements for adolescents in the household
					i147t. Total monthly vegetable requirements for adults in the household
					i147u. Total monthly vegetable requirements for elderly in the household
					i147v. Total monthly fruit requirements for children under 5 in the household
					i147w. Total monthly fruit requirements for adolescents in the household
					i147x. Total monthly fruit requirements for adults in the household
					i147y. Total monthly fruit requirements for elderly in the household
					i147z. Total monthly fish requirements for children under 5 in the household
					i147za. Total monthly fish requirements for adolescents in the household
					i147zb. Total monthly fish requirements for adults in the household
					i147zc. Total monthly fish requirements for elderly in the household
			Survey questionnaires	Households	i147a1. Total beef consumption in last 24 hours for children under 5 in the household (number in Kg for household)
					i147b. Total beef consumption in last 24 hours for adolescents in the household (number in Kg for household)
					i147c. Total beef consumption in last 24 hours for adults in the household (number in Kg for household)
					i147d. Total beef consumption in last 24 hours for the elderly in the household (number in Kg for household)
					i147e. Total fish consumption in last 24 hours in the household (number in Kg for household)
					i147e1. Total fish consumption in last 24 hours for children under 5 in the household (number in Kg for household)
					i147f. Total fish consumption in last 24 hours for adolescents in the household (number in Kg for household)
					i147g. Total fish consumption in last 24 hours for adults in the household (number in Kg for household)
					i147h. Total fish consumption in last 24 hours for elderly in the household (number in Kg for household)
					i147i. Total eggs consumption in last 24 hours in the household (number of eggs for household)

					i147i1. Total eggs consumption in last 24 hours for children under 5 in the household (number of eggs for household)
					i147j. Total eggs consumption in last 24 hours for adolescents in the household (number of eggs for household)
					i147k. Total eggs consumption in last 24 hours for adults in the household (number of eggs for household)
					i147l. Total eggs consumption in last 24 hours for children under 5 in the household (number of eggs for household)
					i147m. Total eggs consumption in last 24 hours for elderly in the household (number of eggs for household)
					i147n. Total milk consumption in last 24 hours in the household (number of 500 ml packet)
					i147n1. Total milk consumption in last 24 hours for adolescents in the household (number of 500 ml packet)
					i147o. Total milk consumption in last 24 hours for children under 5 in the household (number of 500 ml packet)
					i147p. Total milk consumption in last 24 hours for adults in the household (number of 500 ml packet)
					i147q. Total milk consumption in last 24 hours for elderly in the household (number of 500 ml packet)
					i147r. Total vegetable consumption in last 24 hours in the household (number of bundles)
					i147r1. Total vegetable consumption in last 24 hours for children under 5 in the household (number of bundles)
					i147s. Total vegetable consumption in last 24 hours for adolescents in the household (number of bundles)
					i147t. Total vegetable consumption in last 24 hours for adults in the household (number of bundles)
					i147u. Total vegetable consumption in last 24 hours for elderly in the household (number of bundles)
					i147v. Total fruit consumption in last 24 hours in the household (name of fruit_____number eaten_____)
					i147v1. Total fruit consumption in last 24 hours for children under 5 in the household (name of fruit_____number eaten_____)
					i147w. Total fruit consumption in last 24 hours for adolescents in the household (name of fruit_____number eaten_____)
					i147x. Total fruit consumption in last 24 hours for adults in the household (name of fruit_____number eaten_____)
					i147y. Total fruit consumption in last 24 hours for elderly in the household (name of fruit_____number eaten_____)

				i147z. Total chicken consumption in last 24 hours in the household (number of chickens)
				i147za1. Total chicken consumption in last 24 hours for children under 5 in the household (number of chickens)
				i147zb. Total chicken consumption in last 24 hours for adolescents in the household (number of chickens)
				i147zc. Total chicken consumption in last 24 hours for adults in the household (number of chickens)
				i147zd. Total chicken consumption in last 24 hours for elderly in the household (number of chickens)
		Policy and documents analysis	CSO / MoH / Council	i147i. Total vegetable consumption in the Copperbelt Province
				i147ii. Total beef consumption in the Copperbelt Provice
				i147iii. Total bananas & mangoes consumption in the Copperbelt Province
				i147iv. Total fish consumption in the Copperbelt Province
				i147v. Total chickens consumption in the Copperbelt Province
				i147vi. Total eggs consumption in the Copperbelt Province
				i147vii. Total milk consumption in the Copperbelt Province
Social Conditions for Consumers	i155. Availability of household facilitates for storage of food and of energy sources for cooking for different consumers in different areas of the city region	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i155a. Are there household facilitates for storage of food in low cost areas of the city region (yes, no, unknown)
				i155b. Are there household facilitates for storage of food in medium cost areas of the city region (yes, no, unknown)
				i155c. Are there household facilitates for storage of food in high cost areas of the city region (yes, no, unknown)
		Survey questionnaires	Households	i155a. What commodities are stored in the household (text - up to 20 commodities)
				i155b. What type of household storage facilitates are there (text - up to 10 facilities)
		Policy and documents analysis	CSO / MoH / Council	i155i. What commodities are stored in the household
	i153. Food choice: percentage of city region population (per wealth class; children) eating more than 5 fruits and vegetables a day/ Average intake of fruits and vegetables	Key informant interviews	MoH	i153a. What % of children under 5 eat more than 5 fruits a day in low income areas
				i153b. What % of children under 5 eat more than 5 fruits a day in middle income areas
				i153c. What % of children under 5 eat more than 5 fruits a day in high income areas
				i153d. What % of adults eat more than 5 fruits a day in low income areas
				i153e. What % of adults eat more than 5 fruits a day in middle income areas

	for different types of consumers			i153f. What % of adults eat more than 5 fruits a day in high income areas
				i153g. What % of children under 5 eat vegetables a day in low income areas
				i153h. What % of children under 5 eat vegetables a day in middle income areas
				i153i. What % of children under 5 eat vegetables a day in high income areas
				i153j. What % of adults eat vegetables a day in low income areas
				i153k. What % of adults eat vegetables a day in middle income areas
				i153l. What % of adults eat vegetables a day in high income areas
				i153m. What % of children under 5 eat meat a day in low income areas
				i153n. What % of children under 5 eat meat a day in middle income areas
				i153o. What % of children under 5 eat meat a day in high income areas
				i153p. What % of adults eat meat a day in low income areas
				i153q. What % of adults eat vegetables a day in middle income areas
				i153r. What % of adults eat vegetables a day in high income areas
		Survey questionnaires	Households	i153a. How many children eat more than 5 fruits a day in low income areas (name of fruit_____number eaten_____)
				i153b. How many children eat more than 5 fruits a day in middle income areas (name of fruit_____number eaten_____)
				i153c. How many children eat more than 5 fruits a day in high income areas (name of fruit_____number eaten_____)
				i153d. How many adults eat more than 5 fruits a day in low income areas (name of fruit_____number eaten_____)
				i153e. How many adults eat more than 5 fruits a day in middle income areas (name of fruit_____number eaten_____)
				i153f. How many adults eat more than 5 fruits a day in high income areas (name of fruit_____number eaten_____)
				i153g. How many children eat vegetables a day in low income areas (number of bundles)
				i153h. How many children eat vegetables a day in middle income areas (number of bundles)
				i153i. How many children eat vegetables a day in high income areas (number of bundles)
				i153j. How many adults eat vegetables a day in low income areas (number of bundles)
				i153k. How many adults eat vegetables a day in middle income areas (number of bundles)

				i153l. How many adults eat vegetables a day in high income areas (number of bundles)
Presence and Impact of Related Policy	i169. Presence of consumer skills/training cooking programmes (e.g. how to cook from scratch; this also implies knowledge regarding preparation and cultural role)	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i169a. Are there local training programs in cooking or food preparation (yes, no, unknown)
		Key informant interviews	CopWaste / Water & Sewerage / NATMAZ / Traders / Marketers	i169a. Are there local training programs in cooking or food preparation (yes, no, unknown)
		Policy and documents analysis	CSO / MoH / Council	i169i. Are there local training programs in cooking or food preparation (yes, no, unknown)
		Survey questionnaires	Households	i169a. Are there local training programs in cooking or food preparation (yes, no, unknown)
				i169b. Is your household able to properly cook vegetables (yes, no, somehow, never been attempted)
				i169c. Is your household able to properly cook beef (yes, no, somehow, never been attempted)
				i169d. Is your household able to properly cook pork (yes, no, somehow, never been attempted)
				i169e. Is your household able to properly cook eggs (yes, no, somehow, never been attempted)
				i169f. How are the cooking skills at household level acquired (formal training; self taught; learnt from home)
Status of Food Waste Management Approaches	i182. Volumes of wasted food used directly for human consumption e.g. by food banks/soup kitchens in the city region	Key informant interviews	CSO / Chamber of Commerce / MoA / MoH / Councils	i182a. What is the quantity of wasted food from markets (number in tons or %)
				i182b. What is the quantity of wasted food from processing (number in tons or %)
				i182c. What is the quantity of wasted food from retail & catering (number in tons or %)
				i182d. What is the quantity of wasted food from household consumption (number in tons or %)
		Key informant interviews	CopWaste / Water & Sewerage / NATMAZ / Traders / Marketers	i182a. What is the quantity of wasted food from markets (number in tons or %)
				i182b. What is the quantity of wasted food from processing (number in tons or %)
				i182c. What is the quantity of wasted food from retail & catering (number in tons or %)
				i182d. What is the quantity of wasted food from household consumption (number in tons or %)
		Survey questionnaires	Households	i182d. What is the quantity of wasted food from household consumption (quantity in Kg or %)

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3. Status of environment and natural resources degradation	Status of Natural Resource Management	i28. Pressure on water resources within the city region/ Water use (limitations) and competition: agricultural water withdrawal/renewable water resources	Key informant interviews	CopWaste / Councils / Water & Sewerage / MoA, / ZNFU / Water Affairs	i28a. Piped water use (limitations) in production in urban areas: agricultural water withdrawal/renewable water resources (high, low, unknown)
					i28b. Piped water use (limitations) in production in peri-urban areas: agricultural water withdrawal/renewable water resources (high, low, unknown)
					i28c. Limitations for piped water use in urban areas: agricultural water withdrawal/renewable water resources (Hours/week_____; Hours/day_____)
					i28d. Limitations for piped water use in peri-urban areas: agricultural water withdrawal/renewable water resources (Hours/week; Hours/day)
					i28e. Sources of non-piped water use in food production in urban areas: agricultural water withdrawal/renewable water resources (dug wells away from garden; dug wells within garden; boreholes; stream/river; rainfed, sewer water)
					i28f. Sources of non-piped water use in food production in peri-urban areas: agricultural water withdrawal/renewable water resources (dug wells away from garden; dug wells within garden; boreholes; stream/river; rainfed; sewer water)
					i28g. Sources of non-piped water use in food production in rural areas: agricultural water withdrawal/renewable water resources (dug wells away from garden; dug wells within garden; boreholes; stream/river; rainfed; sewer water)
					i28h. Cost of piped water use in food production in urban areas: agricultural water withdrawal/renewable water resources (number)
					i28i. Cost of piped water use in food production in peri-urban areas: agricultural water withdrawal/renewable water resources (number)
		i32. Status of natural biodiversity in the city region	Key informant interviews	MoA / Forestry / ZNFU / ZLA / ZEMA / Councils	i32a. What is the status of natural biodiversity in the city region (intact/degraded/unknown)
					i32b. What drives the change in the status of natural biodiversity in the city region (text)
					i32c. Who manages the natural biodiversity in the city region (text)
					i32d. Do NR legislation and policies support sustainable agriculture practices? (No/Yes)
			Policy and document analysis	MOA/FORESTRY/ZNFU/ZLA/ZEMA/COUNCILS	i32a. What is the status of natural biodiversity in the city region (intact/degraded/unknown)
					i32b. What drives the change in the status of natural biodiversity in the city region (text)
					i32c. Who manages the natural biodiversity in the city region (text)
					i32d. Do NR legislation and policies support sustainable agriculture practices? (FGD)
		i36. Policies, regulations and support for the preservation of agricultural land; use of open	Policy and document analysis	COPWASTE/COUNCILS/WATER&SEWERAGE/MOA/ZNFU/WATER AFFAIRS	i36a. Policies and regulations for use of open space/ zoning etc. relevant for the city region (Note: Amount of land successfully safeguarded for city region food production) (paper/policy review)

		space/zoning etc. relevant for the city region			i36b. Non-policy support (CSO, institutions, for a etc) for use of open space/ zoning etc. relevant for the city region (Note: Amount of land successfully safeguarded for city region food production) (paper/policy review)
					i36c. Policies and regulations for preservation of agricultural land relevant for the city region (Note: Amount of land successfully safeguarded for city region food production) (paper/policy review)
					i36d. Non-policy support (CSO, institutions, for a etc) for preservation of agricultural land relevant for the city region (Note: Amount of land successfully safeguarded for city region food production)(paper/policy review)