ETHIOPIA SUPPLY CHAIN ANALYSIS AND ROUTE MAPPING

INTRODUCTION

The overall aim of supply chain analysis (SCA) is to provide a market network baseline by connecting different types of market actors to guide evidence-based response actions by cash actors within Ethiopia.

Since 2020, REACH (an ACTED's Initiative) has been working in close collaboration with the Ethiopia Collaborative Cash Delivery (CCD) Network to launch and coordinate a Joint Market Monitoring Initiative (JMMI). However, there is currently no initiative undertaken to map supply chains and assess barriers and market integration throughout Ethiopia. Cash-based interventions require supply chains to function properly and to provide basic commodities continuously as any disruptions may affect the availability of basic goods, as well as commodity prices. To address the outlined information gaps, REACH launched and coordinated an SCA and route mapping in key food-insecure (IPC 3 or above)[1] zones of 11 regions of Ethiopia, to better understand whether current local market systems are vulnerable to breakdown when placed under stress.

Information was collected via individual interviews with purposely sampled consumers, retailers, wholesalers, and transporters who acted as individual informants (IIs) for their respective woredas. For commodity stock levels, the median stock levels were calculated for each item within each assessed woreda. National medians were calculated by a second median across all of the woreda-level medians. **Data collection took place between 14 and 31 March 2022. Findings are not generalisable and should rather be considered indicative only.**

More information on the methodology can be found in Annex 1 on page 6.

1. Other criteria, mainly accessibility and population size, were also considered when IPC information was not available.
2. The key commodities were selected as a sample from cereal, meat, fuel and hygiene items. Goat meat was assessed in Mile and Dolo Ado and beef in the rest of the woredas given the availability of the meat types and the consumption pattern in the woredas.
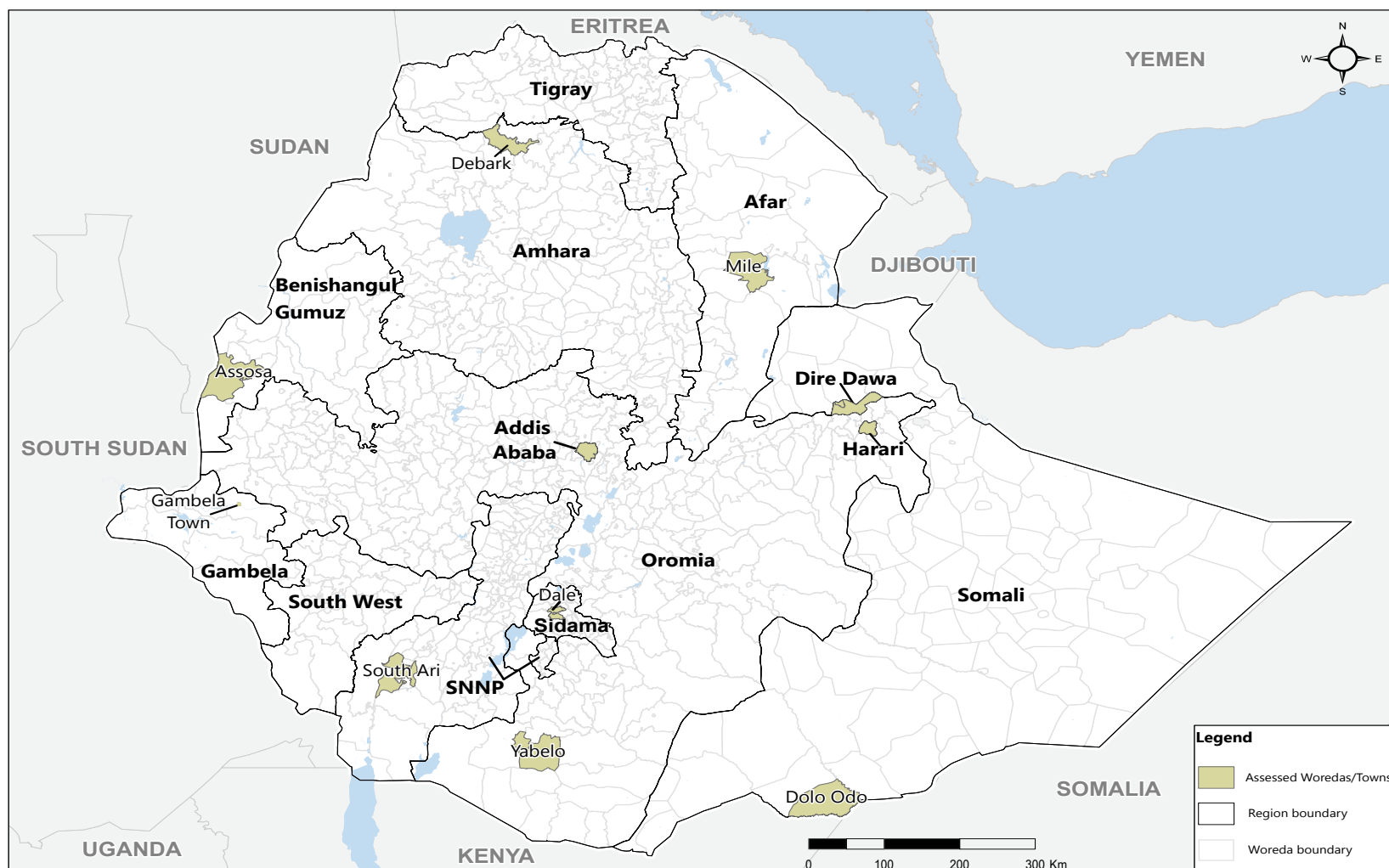
Assessed commodities

Maize
Beef
Goat meat[2]
Charcoal
Bath soap

Individual Interviews (IIs)

IIs with consumers	695	IIs with transporters	139
IIs with retailers	189	Total of IIs	1161
IIs with wholesalers	138	Assessed woredas/towns	11

ASSESSED WOREDAS / TOWNS

Legend
- Assessed Woredas/Towns
- Region boundary
- Woreda boundary

0   100   200   300 Km

REACH Informing more effective humanitarian action

$ MARKET FUNCTIONALITY

AVAILABILITY

Reported availability of key items, by % of interviewed consumers:

Maize
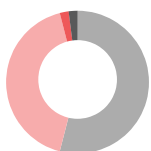
54%	Widely available
42%	Limited availability
2%	Not available
2%	Don't know

Beef
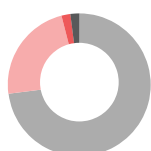
73%	Widely available
23%	Limited availability
2%	Not available
2%	Don't know

Goat meat

67%	Widely available
33%	Limited availability
0%	Not available
0%	Don't know

Bath soap
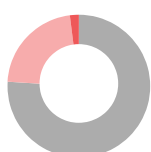
76%	Widely available
22%	Limited availability
2%	Not available
0%	Don't know

Charcoal

59%	Widely available
39%	Limited availability
0%	Not available
2%	Don't know

Main reasons for limited availability

Main reasons for limited availability, by % of interviewed consumers reporting limited availability per key item[3]:

|	Maize	Beef	Goat meat	Charcoal	Bathsoap
Producers producing less	20%	65%	71%	80%	77%
Suppliers cannot meet demand	11%	61%	43%	48%	63%
Increased demand	18%	32%	50%	38%	40%
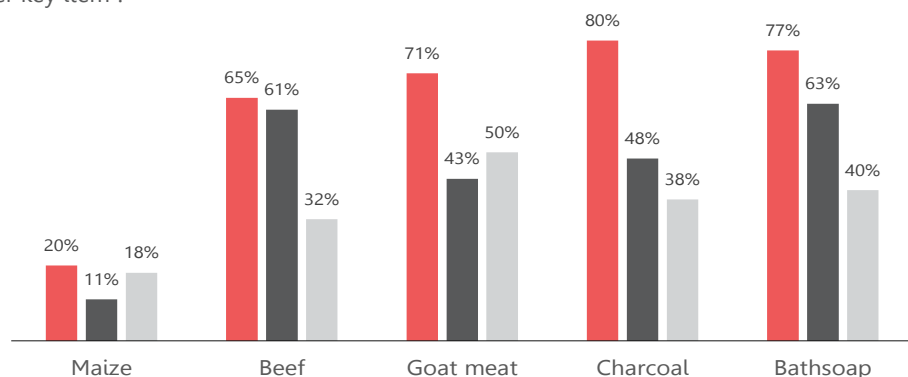
■ Producers producing less ■ Suppliers cannot meet demand ■ Increased demand

3. Percentages may add up to more than 100%, as respondents could choose more than one response.

AFFORDABILITY

% of consumers reporting **not** having been able to afford the following items consistently in the 30 days prior to data collection:

Item	%
Bath soap	19%
Charcoal	18%
Goat meat	5%
Beef	36%
Maize	28%
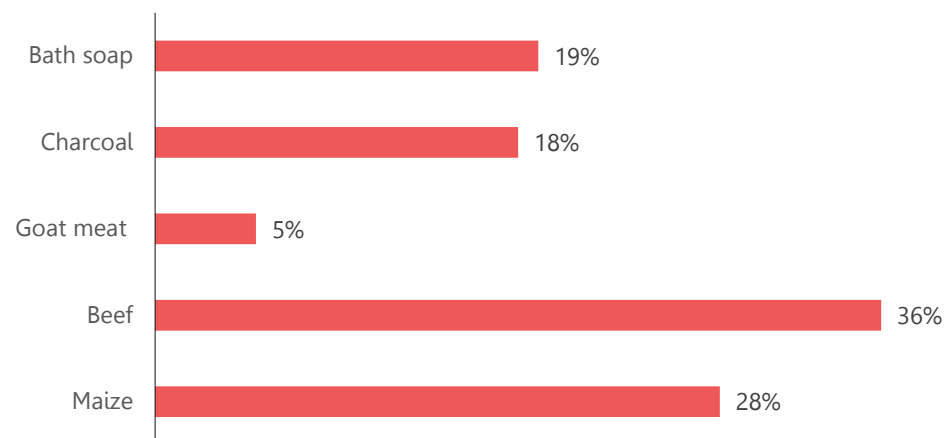
AVAILABLE STOCK AND TIME NEEDED TO RESTOCK

Item	Median level of stock remaining in store (days)	Amount of time needed to fully restock (days)
Retailers		
Maize	20	7
Beef	2	2
Goat meat	1	1
Charcoal	6	4
Bath soap	9	2
Wholesalers		
Maize	20	7
Beef	3	4
Goat meat	1	1
Charcoal	7	5
Bath soap	12	7

Green = no issues (remaining stock > time needed to restock)
Yellow = supply chain limitations (remaining stock = time needed to restock)
Red = imminent shortage (remaining stock < time needed to restock)

BARRIERS TO MARKET FUNCTIONALITY AND ACCESSING MARKETPLACES

PHYSICAL BARRIERS

2% (n=14) of interviewed **consumers** reported **not** having been able to physically and safely reach their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]

❶ 55% Curfew

❷ 32% Limited transportation options

❸ 24% Damaged marketplace infrastructure

41% (n=56) of interviewed **wholesalers** reported **not** having been able to physically and safely reach their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]

❶ 62% Curfew

❷ 37% Market is open for reduced hours

❷ 31% Limited transportation options

45% (n=85) of interviewed **retailers** reported **not** having been able to physically and safely reach their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]

❶ 56% Curfew

❷ 39% Limited transportation options

❸ 33% Market is open for reduced hours

24% (n=33) of interviewed **transporters** reported **not** having been able to physically and safely reach their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]

❶ 66% Curfew

❷ 21% Limited transportation options

❸ 18% Market is open for reduced hours

SOCIAL BARRIERS

12% (n=19) of interviewed **consumers** reported having faced discrimination/prejudice/poor treatment while accessing their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]

❶ 79% Cultural prejudice[5]

❷ 72% Ethnic prejudice[6]

19% (n=26) of interviewed **transporters** reported having faced discrimination/prejudice/poor treatment while accessing their nearest marketplace in the 30 days prior to data collection. The most reported barriers were:[4]
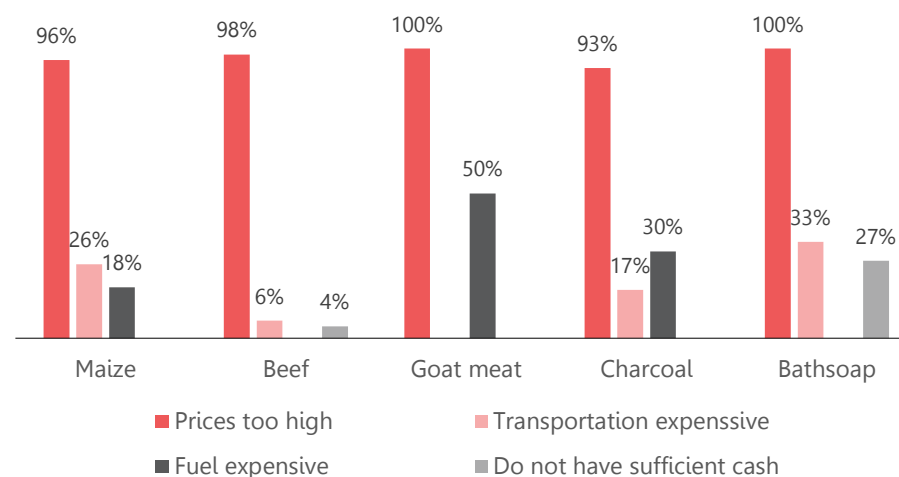
❶ 70% Ethnic prejudice

❷ 63% Cultural prejudice

❸ 7% Other

10% (n=18) of interviewed **retailers** reported having faced discrimination/prejudice/poor treatment while accessing marketplaces in the 30 days prior to data collection.

12% (n=16) of interviewed **wholesalers** reported having faced discrimination/prejudice/poor treatment while accessing marketplaces in the 30 days prior to data collection.

FINANCIAL BARRIERS

CONSUMERS

Reported financial barriers per assessed item, by % of interviewed consumers:[4]

Bar chart legend:
- Prices too high
- Transportation expenssive
- Fuel expensive
- Do not have sufficient cash

Item	Prices too high	Transportation expensive	Fuel expensive	Do not have sufficient cash
Maize	96%	26%	18%	
Beef	98%	6%	4%	
Goat meat	100%		50%	
Charcoal	93%	17%	30%	
Bathsoap	100%	33%		27%

RETAILERS

29% (n=55) of interviewed **retailers** reported **not** having been able to consistently supply/sell key commodities to their marketplace in the 30 days prior to data collection. The most reported reasons were:[4]

❶ 67% High transportation cost

❷ 60% Items have become unaffordable for consumers to purchase.

❸ 54% Not enough money to purchase these items in the amounts needed.

WHOLESALERS

33% (n=45) of interviewed **wholesalers** reported **not** having been able to consistently supply/sell key commodities to their marketplace in the 30 days prior to data collection. The most reported reasons were:[4]

❶ 57% Items have become unaffordable for consumers to purchase.

❷ 46% High transportation cost

❸ 41% There's not enough money to purchase these items in the amounts needed

TRANSPORTERS

41% (n=57) of interviewed **transporters** reported **not** having been able to consistently supply/sell key commodities to their marketplace in the 30 days prior to data collection.

4. Percentages may add up to more than 100%, as respondents could choose more than one response.
5. Cultural prejuidce is defined as a negative opinion or attitude about people based on their culture.
6. Ethinic prejuidce is defined as a negative opinion or attitude about people for belonging to a specific ethnic group.

MARKET FUNCTIONALITY AND BARRIERS

MARKET FUNCTIONALITY SCORE

The Market Functionality Score (MFS) is a composite indicator to measure market functionality. The MFS is based on the following dimensions: 1) availability of key commodities in marketplaces, 2) consumers' ability to consistently access these items, 3) traders' stock levels and restock duration, and 4) physical access to markets. In total, 4 key items (maize, meat[7], bath soap, and charcoal) were scored along these four dimensions, with dimensions being weighted along their relative importance (availability weighing 40%; stock balance, affordability, and accessibility each weighing 20%). For each dimension, the thresholds were as follows:

1. **Availability:** Scores for each item were based on the highest proportion of responses: 0 = Not available; 5 = Limited availability; 10 = Available.
2. **Affordability**: Scores for each item were based on the % of consumers reporting being able to afford each respective item: 0 = 0-25%; 2 = 26-50%; 3 = higher than 50%.
3. **Stock levels**: Scores for each item were based on the difference (in days) between remaining stock and time needed to resupply said item: 0 = resupply takes longer than remaining stock levels; 1 = stock equals resupply; 2 = stock is between 1 and 3 days longer than required resupply; 3 = stock is more than 3 days longer than required resupply.
4. **Market accessibility**: Social, physical and security access variables were included in this dimension and the scores given were region-specific.

Market functionality is categorised per assessed location as follows: 0-24 = not functional; 25-50 = poorly functional; 51-75 = fairly functional; 76-100 = functional. Details on the MFS methodology can be found here. The MFS is based on only 4 key items and was only calculated in the assessed zones, and findings are not generalisable.

MARKET FUNCTIONALITY DIMENSIONS AND SCORES

Woreda/ Town	Availability total score	Affordability total score	Stock balance total score	Barriers total score	Total Score	Market Functionality
Asosa	40	19	8	16	**83**	**Functional**
South Ari	25	15	8	14	**62**	**Fairly functional**
Dale	30	8	2	18	**58**	**Fairly functional**
Gambela	40	18	2	18	**78**	**Functional**
Abadir	25	21	6	20	**72**	**Fairly functional**
Dolo Ado	35	21	3	14	**73**	**Fairly functional**
Addis Ababa	40	18	2	19	**79**	**Functional**
Debark	35	21	1	13	**70**	**Fairly functional**
Mile	30	21	4	18	**73**	**Fairly functional**
Yabelo	30	18	0	19	**67**	**Fairly functional**
Dire Dawa urban	20	20	5	18	**63**	**Fairly functional**

7. Goat meat was assessed in Mile and Dolo Ado and beef in the rest of the woredas given the availability of the meat types and the consumption pattern in the woredas.

SECURITY CHALLENGES[8]

2% (n=4) of interviewed retailers reported having faced security challenges in the 30 days prior to data collection.

3% (n=4) of interviewed wholesalers reported having faced security challenges in the 30 days prior to data collection.
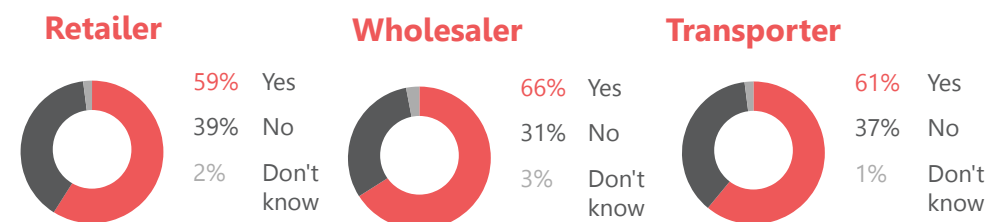
GROUPS FACING DIFFICULTY ACCESSING MARKETPLACES

11% (n=76) of consumers reported having known groups that faced difficulty accessing marketplaces. The most reported population groups were[9]:

❶ 59% Female older persons

❷ 53% Girls
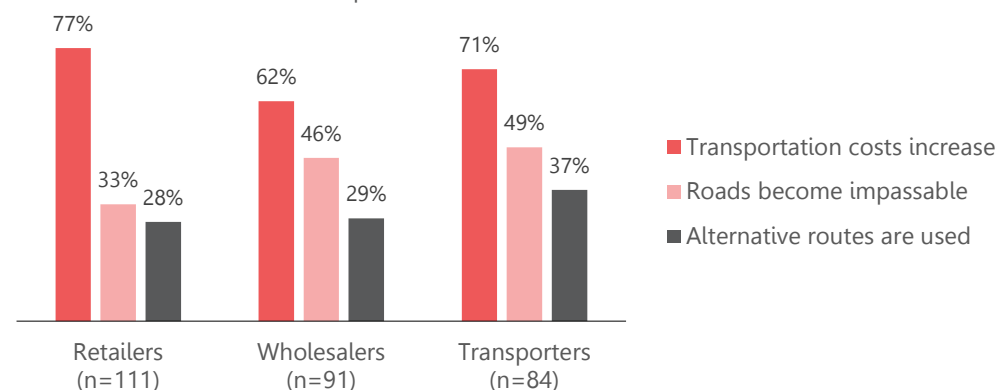
❸ 39% Persons with disabilities

EFFECTS OF SEASONAL CHANGE

Proportion of retailers, wholesalers and transporters that reported perceiving a change of supply of key commodities depending on the (wet and dry) season:

Retailer

59% Yes
39% No
2% Don't know

Wholesaler

66% Yes
31% No
3% Don't know

Transporter

61% Yes
37% No
1% Don't know

Effects of seasonal change on transportation

Effects of seasonal change (in rainy season) on transportation, by % of interviewed retailers, wholesalers and transporters[9]:

Retailers (n=111): 77%, 33%, 28%
Wholesalers (n=91): 62%, 46%, 29%
Transporters (n=84): 71%, 49%, 37%

- ■ Transportation costs increase
- ■ Roads become impassable
- ■ Alternative routes are used

8. Security challenges included theft of goods or cash, physical attack, etc.
9. Percentages may add up to more than 100%, as respondents could choose more than one response.

SUPPLY ROUTES MAPPING

Map legend:

Legend
- ● Supplier Source Zones
- → Maize
- → Beef
- → Goat meat
- → Charcoal
- → Bath soap
- Major road
- Assessed Woredas/Towns
- Zone boundary
- Region boundary

Scale: 0 — 100 — 200 — 300 Km

Countries and regions labeled: SUDAN, ERITREA, YEMEN, DJIBOUTI, SOUTH SUDAN, SOMALIA, SOMALIA, UGANDA, KENYA

Regions: Tigray, Afar, Amhara, Benishangul Gumuz, Dire Dawa, Harari, Gambela, South West, SNNP, Sidama, Oromia, Somali

Locations: Debark, North Gondar, South Gondar, West Gojam, East Gojam, Awi, Assosa, South Wello, Awsi /Zone 1, Mile, Siti, East Wellega, West Wellega, North Shewa (OR), Finfine Special, Gabi / Zone 3, Fafan, Addis Ababa, South West Shewa, East Shewa, West Hararge, East Hararge, Gambela Town, Nuwer, Agnewak, Jimma, West Arsi, Arsi, Bale, East Bale, Bale, Wolayita, Bale, Gofa, Gamo, Mirab Omo, South Ari, Alle, Burji, Konso, West Guji, Gedeo, Guji, Liban, Afder, SouthOmo, Yabelo, Borena, Dolo Odo

METHODOLOGY DETAILS

The methodology centred on structured interviews with purposely sampled retailers, wholesalers, transporters and consumers who acted as individual informants (IIs) for their respective woredas. Eleven woredas were selected from 11 regions of Ethiopia. The selection of woredas was based on different criteria. The first criterion consisted of targeting the woredas in crisis zones or zones experiencing food insecurity (Phase 3 or above according to the Integrated Food Security Phase Classification (IPC)) for the areas covered by IPC (October 2020) . The second criterion was the representativeness of the assessment at national level by having one woreda in each region apart from Tigray, due to limited accessibility, and South West region, as it had only recently split from SNNP. In addition, woredas with higher population sizes were prioritised, and availability of markets and commodities, as well as physical accessibility and the availability of human resources to monitor the assessment, were also considered.

For purposes of collecting quantitative data, the population of interest comprised market actors (i.e., consumers, retailers, wholesalers, and transporters) involved in the sale of the four targeted key commodities (i.e., maize, beef/goat meat, charcoal, and bath soap), operating in and around the same main woredas. The key commodities were selected as a sample from cereal, meat, fuel and hygiene items. Goat meat was assessed in Mile and Dolo Ado and beef in the rest of the woredas given the availability of the meat types and the consumption pattern in the woredas. Consumer respondents were selected based on whether they regularly shopped in the assessed marketplaces, assuming that they will have sufficient knowledge of the key commodities. Retailers, wholesalers, and transporters, on the other hand, were selected based on their involvement in the supply chains as either wholesalers, retailers or transporters of the assessed key commodities.

The unit of measurement for market actors was the woreda to match the unit of analysis. Within each targeted woreda, REACH enumerators were responsible for purposely identifying respondents to interview (for each of the 4 target commodities) along the supply chain that match the following criteria:

- Retailers who sell one or more assessed commodities directly to consumers

- Wholesalers who sell one or more assessed commodities directly to other traders

- Transporters who move the target commodities through, into, and out of Ethiopia

- Consumers who typically buy from small as well as large traders for consumption

For each selected key commodity, REACH interviewed a minimum of 15 consumers, 4 retailers, 3 wholesalers, and 3 transporters along the supply chain in each assessed woreda, resulting in a minimum of 100 total interviews per woreda. Data was collected between 14 and 31 March 2022. Findings are not generalisable and should rather be considered indicative only.

Challenges & Limitations

- Data collection took place during the Easter fasting season, which might have impacted the experiences and answers of respondents, especially in Amhara region where beef availability was limited compared to other non-fasting periods. To mitigate this, snowball sampling was used to access consumers, suppliers, and transporters that did not operate in the market during data collection.

- Integrated Food Security Phase Classification (IPC) information (October 2020) was not available for some areas, which made it difficult to use IPC criteria to identify marketplaces for the assessment in all the cases. IPC information was not available for the following regions: Gambela, Benishangul Gumuz, Dire Dawa, Harari and Addis Ababa. The following criteria were used to select woredas in these regions: woredas with higher population sizes, availability of markets and commodities, physical accessibility and the availability of human resources.

- Only four items were assessed in each assessed woreda and the assessement should not be considered as generalisable to all the items available in the marketplaces.

- The Market Functionality Score is only indicative of the functionality of markets for the assessed key items in the assessed woredas at the time of data collection; the final scores should not be considered generalisable to the regional or national level.

Funded by the European Union

About REACH

REACH is a joint initiative that facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery, and development contexts. By doing so, REACH contributes to ensuring that communities affected by emergencies receive the support they need. All REACH activities are conducted in support to and within the framework of inter-agency aid coordination mechanisms.

For more information, please visit our website at www.reach-initiative.org or follow us on Twitter at @REACH_info.