



November 2016

**What does the conflict-induced public sector crisis mean for food security in Yemen?**

## Special Focus

# Yemen

- The conflict-induced crisis in Yemen has been devastating for the country, aggravating an already deteriorating economic performance. GDP dropped by 34.6 percent between 2014 and 2015. The public budget deficit almost doubled between the first half of 2015 and the first half of 2016. The currency exchange rate in the parallel market has been fluctuating and diverging from the official rate (YER250/US\$), reaching a record high of YER315/US\$ in September 2016.
- Since late July 2016, the Central Bank of Yemen (CBY) has suspended public budget expenditures and domestic debt service. As a consequence civil servants, who represent 31 percent of the workforce in the country, have experienced irregular salary payments or complete salary cuts. The entire social protection system has collapsed, with a suspension of safety nets to 1.5 million beneficiaries through the Social Welfare Fund since the beginning of the crisis in 2015.
- The conflict-driven public sector crisis in Yemen is now escalating. The decision of President Hadi on 19 September to move the CBY from Sana'a to Aden has created a host of uncertainties. The possible breakdown of the banking system and an inability to pay salaries would accelerate economic collapse and could tip large parts of the country into extreme food insecurity.
- WFP estimates that the depth of hunger among the Yemeni population, measured by the aggregated household food energy consumption deficit, is almost double that of the pre-crisis period, pushing those who were already food insecure into a severe level of food insecurity. The current worsening of the crisis might triple the depth of hunger, leaving the population in need of twice as much food assistance as in May 2016. The food-insecure population is increasing as the situation deteriorates, and in the worst-case scenario, it is forecasted to reach 21 million people.



## The conflict-driven public sector crisis in Yemen is escalating

Since the breakout of conflict in Yemen in March 2015, the population has been the primary victim, sustaining air bombardments, rocket attacks and economic blockades. Over 10,000 people have been killed, approximately 4,000 of them civilians, and 3.15 million Yemenis are internally displaced.<sup>1</sup>

There used to be a tacit agreement between the parties in the conflict to allow the CBY to perform its functions relatively free from interference. Until recently, the bank has remained largely impartial, guaranteeing the import of basic commodities, protecting the value of the riyal and paying public-sector salaries nationally. However, without revenue from interrupted hydrocarbon exports (previously 70 percent of government revenue) or donor support, the bank is rapidly approaching insolvency.<sup>2</sup> Limited financial resources forced the CBY to suspend a large part of public expenditures and domestic debt service from late July 2016 onwards. This has led to

irregular – in some cases zero – salary payments<sup>3</sup> for civil servants, who represent 31 percent of the workforce in the country. Payment is limited to basic salaries<sup>4</sup> (no benefits or entitlements), which is about 50 percent of the pre-conflict salary level. The reduction or suspension of government salaries is likely to have a substantial negative impact on the overall well-being of the Yemeni population as governmental wages are the main income source for more than a quarter of households in Yemen.<sup>5</sup>

On 19 September, President Hadi dismissed the CBY governor and announced he would move the bank from Sana'a to Aden. The decree has caused a lot of uncertainties, given the lack of details on the new policy and its logistic implementation. The possible breakdown of the banking system and an inability to pay salaries would accelerate economic collapse and could tip large parts of the country into extreme food insecurity.

## The economy was already in a dire state before these recent developments...

The economic impact of the ongoing conflict has been devastating for Yemen, aggravating its already weak economic performance. In 2015, GDP dropped 34.6 percent,<sup>6</sup> driven down by the disruption of oil production and other economic activities. The maritime and airspace restrictions halved oil and gas exports and limited imports, causing inflationary pressure; annual inflation reached around 40 percent in 2015. The economic contraction has put further stress on public finance, pushing the fiscal deficit to 11 percent of GDP.<sup>7</sup>

The foreign currency reserve is almost exhausted, standing at US\$0.987 billion in September 2016 compared to US\$4.7 billion in December 2014.<sup>8</sup> The depletion has mainly been caused by the suspension

of oil and gas exports<sup>9</sup> and the suspension of donor development support. The current poor functioning of the country's financial system coupled with the dwindling foreign currency reserve presents a serious obstacle to traditional trade financing instruments such as Letters of Credit, further contributing to an unprecedented liquidity crisis.<sup>10</sup> The currency balance outside banks increased by Yemen riyal (YER) 296 billion from January to June 2016 (with a YER133 billion increase in June alone). For comparison, the annual increase was YER26.1 billion in 2014 and YER222.8 billion in 2015, showing the severe pressures imposed on liquidity in the banking system during the last few months.<sup>11</sup>

1. Task Force on Population Movement.

2. ICG 2016.

3. WFP-led key informant interviews.

4. As confirmed by an UNDP interview with a Deputy Minister of Civil Service in February 2016. With respect to the employment of civil servants, local civil servants including teachers and healthcare staff were paid in June and September 2016.

5. WFP Comprehensive Food Security Survey (CFSS) 2014.

6. Ministry of Planning & International Cooperation (MoPIC), Yemen Socio-Economic Update (YSEU), Issue 15, June 2016.

7. World Bank at <http://pubdocs.worldbank.org/en/941121475773070794/Yemen-MEM-Fall2016-ENG.pdf>

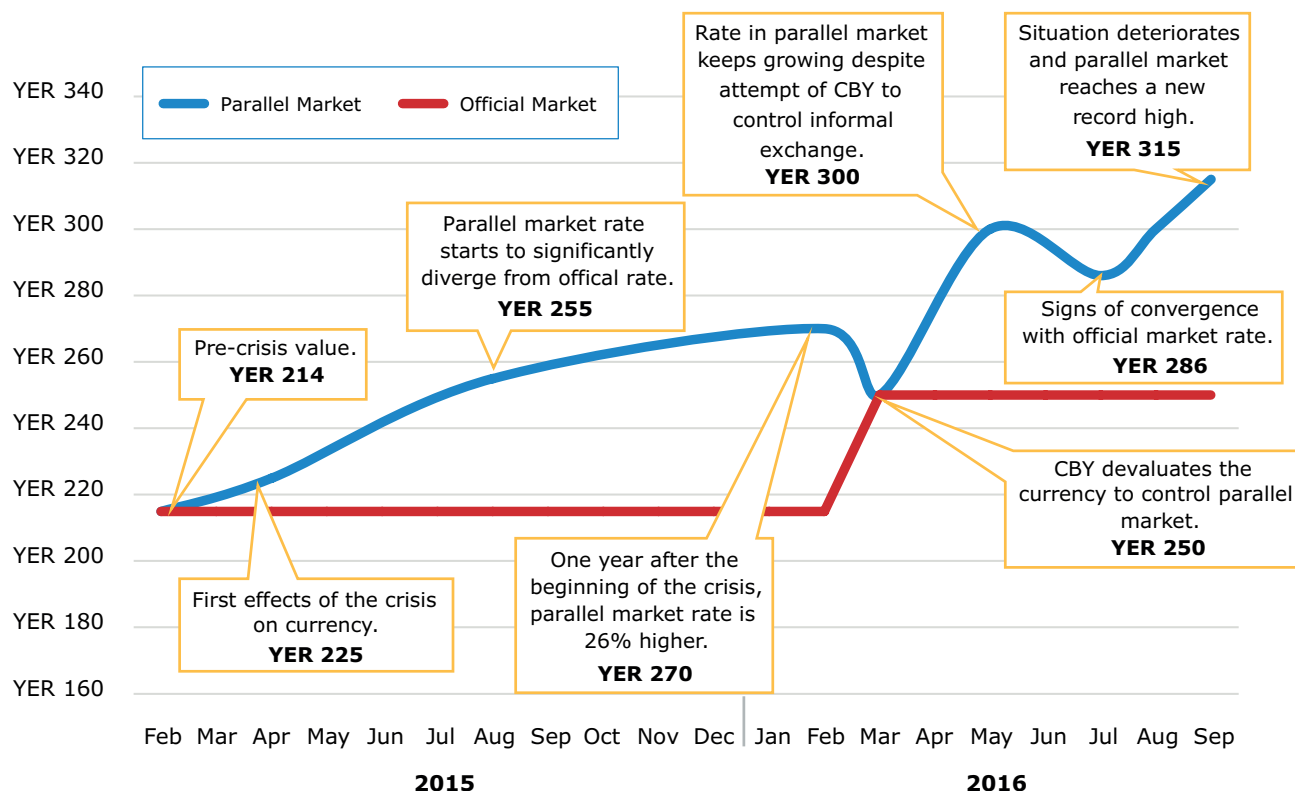
8. MoPIC, YSEU, Issue 18, September 2016.

9. Oil and natural gas exports are the most important source of the foreign currency that strengthens the foreign exchange reserves, finances the food and non-food imports, and supports the exchange rate stability (YSEU #14). Remittance transfers made by Yemenis working abroad represent the second biggest source of foreign exchange in Yemen after the oil and gas exports. During 2012–2014, these transfers reached an average US\$3.3 billion per year, of which over 90% was in Saudi Riyals. A FEWS NET rapid assessment conducted in August 2016 found that difficulties accessing international remittances have increased compared to past months and include delays, lack of currency, closed offices, and banks often being unwilling to process remittances at official exchange rates (FEWS NET, 2016).

10. The lack of liquidity at the CBY is limiting the liquidity of the banks, not least considering that 59 percent of commercial and Islamic banks' assets were saved as balances at the CBY (13%) and invested in government securities (46%) in 2015. Furthermore, CBY's reluctance to accept foreign currency deposits and the withdrawal limits on deposits set by banks has pushed businesses to save their money outside banks, reducing bank liquidity further still (MoPIC, August 2016).

11. MoPIC, YSEU, Issue 17, September 2016.

**Figure 1. Exchange rate (YER/US\$) in Yemen, February 2015 to September 2016**



Source: Author's elaboration. Data from MoPIC and WFP key informants.

The parallel exchange rate has fluctuated between YER214.9/US\$ in February 2015 and a record high of YER315/US\$ in September 2016. The depletion of foreign reserves coupled with the devaluation of the riyal in the parallel market led the CBY to devalue the national currency in the official market (Figure 1) in March 2016. Despite the objective of fixing the rate at a more realistic level, the exchange rate in the parallel market has continued to fluctuate and diverge from the official rate.

Using data from the CBY, the International Monetary Fund (IMF) and the Islamic Development Bank (IDB) have created forecasts based on two scenarios, one assuming an early cessation of the conflict and

the other a deterioration of the situation (Table 1). In the best-case scenario, the trade balance deficit would fall from -7.5 percent in 2016 to -3.4 percent in 2018, reflecting a gradual return of hydrocarbon production and exports in conjunction with increasing energy prices. The current account position would also gradually improve, with a sustained amount of remittances and the improving trade balance. In the worst-case scenario, the trade balance deficit would stand at -15.7 percent in 2016. The trade balance deficit is forecasted to experience a minor recovery in 2017 and 2018 but would still remain high. In the worst-case scenario, the current account position would remain high throughout the forecast period.

**Table 1. IDB's Yemen external trade model forecasts**

Indicators	Cessation of Conflict			Further Deterioration		
	2016	2017	2018	2016	2017	2018
Current Account (% of GDP)	-3.2%	-2%	-1.6%	-8.6%	-8%	-7.8%
Trade Balance Deficit (% of GDP)	-7.5%	-4.8%	-3.4%	-15.7%	-14.7%	-13.3%

Source: The forecasts use the Yemen External Trade Model developed by IDB (Damage Assessment Need 2016).

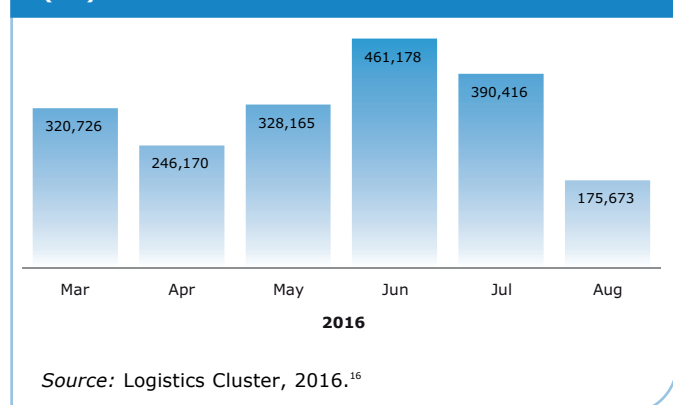
**...with decreasing food imports...**

Yemen is dependent on imports, and 90 to 95 percent of staple foods are imported into the country. According to FAO/GIEWS, annual wheat imports average around 2.8 million mt, accounting for 95 percent of national wheat consumption. On average, Yemen imports 3.7 million mt of cereals, and the forecasted need for cereal imports for the 2014/2015 marketing year was 4.1 million mt. However, according to the Logistics Cluster report released in September 2016, only 1.9 million mt of food entered the country between March and August 2016,<sup>12</sup> excluding informal trade with Saudi Arabia and other Gulf countries. It is evident that imports have suffered in recent months (Figure 2). The low level of imports – coupled with continued conflicts and airstrikes in several parts of the country which have restricted movements – mean that essential foods and fuel remain scarce in local markets. Fuel has been sparsely available throughout the country,

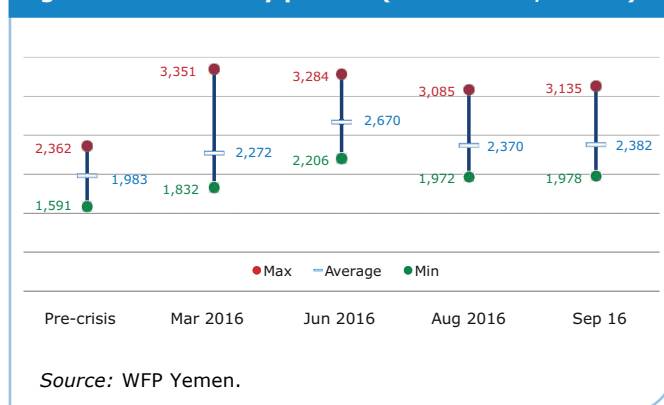
with very slight signs of improvement in the last two months thanks to the partial resumption of oil production in Aden.<sup>13</sup>

Despite the above, the prices of basic commodities were stable in September 2016 compared to previous months, although they remain above pre-crisis levels: the reference food basket is on average 20 percent more expensive than in February 2015 (Figure 3). The difference between wheat flour and wheat import prices continued to widen across most markets between July and September 2016, despite gradually declining international wheat prices. This is attributed to the high and erratic price of the fuel used for milling, in addition to conflict-related distribution disruptions that increase the risk premium of transferring wheat flour from production centres to markets.<sup>14</sup> Market integration is still weak: the cost of the minimum food basket ranges between YER3,135 in Taiz and YER1,978 in Raymah (Figure 3).<sup>15</sup>

**Figure 2. Total food import in the last six months (mt)**



**Figure 3. Food basket cost comparison among governorates in key periods (min vs. max, in YER)**



**...and a collapsing social protection system**

Before the outbreak of the current conflict, more than 50 percent of the Yemeni population was living under the national poverty line.<sup>17</sup> The social protection mechanisms that existed prior to the crisis covered 1.5 million people through various forms of conditional and unconditional cash transfers.<sup>18</sup> In addition to the cut in social services,

transfers – including pensions and other social protection entitlements – have gradually been suspended since the conflict began. The fuel subsidy that used to account for a fifth of the total fiscal budget spent on salaries and wages has in practice been abolished, falling from US\$3.2 million in 2013 to US\$0.1 million in 2015.<sup>19</sup>

12. Cereal imports have accounted for 61 percent of total food imports as of 2013 (source: FAOSTAT), which is to say that the imported food volume of 1.9 million mt (Mar–Aug 2016) is significantly lower than pre-crisis levels.  
 13. WFP Market Watch – Issue 5 September 2016.  
 14. FEWS NET Price Watch: August 2016 Prices, 30 September 2016.  
 15. WFP Market Monitoring data, September 2016.  
 16. [http://www.logcluster.org/sites/default/files/logistics\\_cluster\\_yemen\\_shipping\\_food\\_fuel\\_snapshot\\_august\\_161006.pdf](http://www.logcluster.org/sites/default/files/logistics_cluster_yemen_shipping_food_fuel_snapshot_august_161006.pdf)  
 17. WFP Comprehensive Food Security Survey 2014.  
 18. Social Welfare Fund (SWF), the Social Fund for Development (SFD) and the Public Works Programme (PWP), the SFD Labour-Intensive Works Program (LIWP)/ Cash for Work Programmes, and the Public Works Project (PWP).  
 19. MoPIC, YSEU, Issue 14, May 2016.

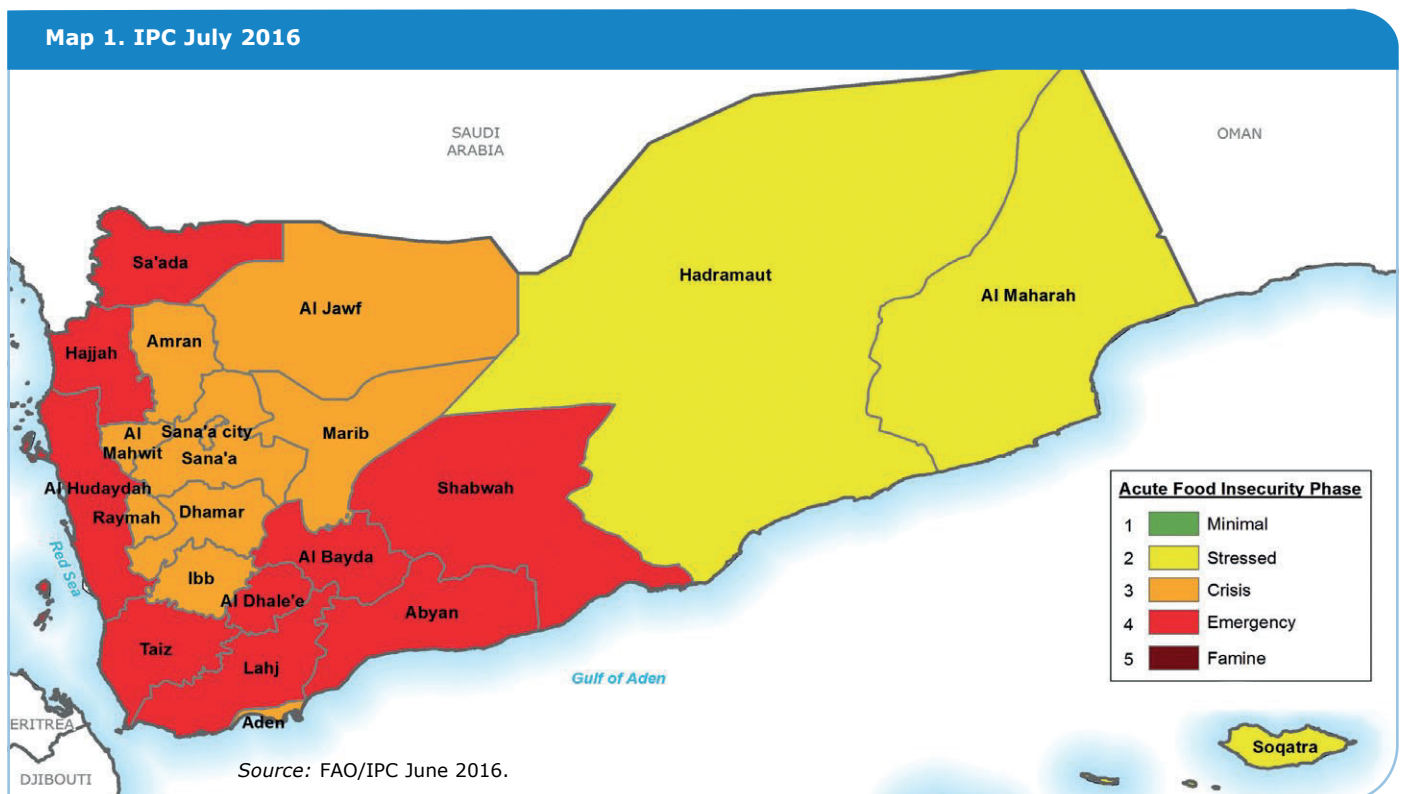
**Food insecurity and the depth of hunger is likely to deteriorate**

Food insecurity and malnutrition are widespread, caused by the heightened conflict, together with the restriction and disruption of commercial and humanitarian imports, mass displacement, loss of livelihoods and income, scarcity and the high price of fuel, disrupted market systems, the high price of food and essential goods, and the suspension of safety net and public work programmes.

The impact of the deepening crisis is felt among different food security and wealth groups of the population. According to the 2014 CFSS, 63 percent of the households who rely on social welfare were food insecure. Households with state salaries as their main income source were relatively better off, with 32 percent being food insecure. Forty-one percent of those with pensions as their main income source were food insecure. With the reduction or suspension of social assistance and state salaries, those already food insecure will become even more so, while vulnerable or food-secure households may be tipped into food insecurity.

According to the latest IPC (Map 1) in June 2016, half the population in Yemen – over 14 million people – are food insecure. Of the 14 million, seven million are severely food insecure and require emergency food assistance, whereas the remaining half are moderately food insecure. Nine governorates are classified as Phase-4 (Emergency) and additional ten governorates are Phase-3 (Crisis).<sup>20</sup>

mVAM trend data from June to September 2016 show that the worst food security indicators are found in a cluster of governorates severely affected by conflict – Hajjah, Taiz, Ibb, Al Dhale and Raymah. In these areas, 50 percent or more of the population have inadequate (poor or borderline) food consumption, and an exceptionally high reduced coping strategy index (rCSI).<sup>21</sup> By contrast, food security levels appear to be relatively better in Al Maharah and Hadramaut, where the proportion of households with inadequate food consumption is between 10 and 32 percent, and negative coping levels are lower.<sup>22</sup>



Against this backdrop, WFP has developed scenarios to simulate the impact of the conflict-induced economic shock on the food security of the Yemeni population. The analysis uses the

Shock Impact Simulation Model (SISMod), a partial equilibrium model jointly developed by FAO and WFP.<sup>23</sup> Details on the model can be found in Annex 2.

20. Global Food Security Update – Issue 22 July 2016 - Tracking food security trends in vulnerable countries.  
 21. Using a recall period of seven days, rCSI is based on the weighted number of days during which any of five coping strategies were used. These are eating less-preferred foods, borrowing food or money from friends and relatives, limiting portions at mealtime, limiting adult intake and reducing the number of meals per day.  
 22. mVAM Bulletin #14, September 2016.  
 23. In this paper, the 'light' version has been used to overcome some data availability problems. Details on the model can be found in the Annex 2. For more information, see <http://faowfpmodel.wix.com/sismod>

The analysis uses the latest CFSS conducted by WFP in 2014, adjusted to the most recent population data, the Consumer Price Index (CPI) and market prices. The simulation results are presented focusing on three main outputs: (1) the changes in the incidence of hunger, or the percentage of food-insecure population compared to the 2014 CFSS; (2) the changes in the depth of hunger, or the average dietary energy deficit of the food-insecure population compared to pre-crisis levels;<sup>24</sup> and (3) the increase in food assistance needed to fill the food consumption deficit (or food gap), compared to the latest analysis conducted in May 2016 and aligned to the IPC results of June 2016.<sup>25</sup>

We simulate three different scenarios:

**(1) Current scenario:** 50 percent cut in income (public, private and agricultural sector salaries)

compared to the pre-crisis period, no social benefits, prices at September 2016 levels (compared to the pre-crisis level in February 2015, this means a 20 percent increase in the price of a standard food basket);

**(2) Most likely scenario:** zero income for public employees, zero social benefits, income from agriculture and private sector/owned business halved, and food prices at September 2016 levels;

**(3) Worst-case scenario:** zero income for public employees, zero social benefits, income from agriculture and private sector/owned business halved, and food prices of November 2015 (highest recorded since March 2015).

Table 2 shows the simulation results. See Annex 1 for more details.

**Table 2. Simulation results**

	<b>Changes in the hunger incidence</b> (compared to CFSS 2014)	<b>Changes in the depth of hunger</b> (compared to CFSS 2014)	<b>Increase in food assistance needs</b> (compared to May 2016)	
Current scenario	+ 40%	+ 93%	42%	
Most likely scenario	+ 47%	+ 110%	53%	
Worst-case scenario	+ 89%	+ 198%	119%	

	<b>Baseline (2014 CFSS)</b>	<b>Current scenario</b>	<b>Most likely scenario</b>	<b>Worst-case scenario</b>
Percentage of Food-Insecure Population	41%	58%	61%	77%
Number of Food-Insecure Population	10.6 million	15.7 million	16.6 million	21.1 million

Source: SISMod simulations.

The *current scenario*, whereby the salary from all sectors is halved and prices are at September 2016 levels, would see an increase in the food-insecure population of 40 percent. The main concern in this scenario is a worsening in the depth of hunger of those who are already food insecure. The depth is estimated to have almost doubled (an increase of 93 percent) from the pre-crisis level. The current scenario would result in a need to increase food assistance by 42 percent compared to May 2016 levels.

The *most likely scenario* shows the significant negative impact of the likely breakdown of the public sector caused by the deteriorating economy and ongoing conflict; this is deemed to be the most likely scenario in the near future given the current information available. The model predicts that the

depth of hunger will increase by 110 percent, and the food-insecure population will reach 16.6 million, 47 percent more than before the crisis, and up by 2.5 million compared to the latest IPC (June 2016). A 53 percent increase in food assistance would be needed to fill the gap created by the worsening situation.

The *worst-case scenario* estimates that the food-insecure population will increase by 89 percent, leaving 21 million people (77 percent of the population) food insecure, with the depth of hunger tripling. The situation would call for 119 percent more food assistance compared to the amount needed in May 2016.

The impact would be felt more in the urban areas, where the change in the depth of hunger is almost twice that of rural areas across all the scenarios.

## The intensity of this crisis should not be underestimated

The simulated increases in the depth of hunger are alarming, indicating a rapid deterioration in the situation of already food-insecure households. A peace agreement is a fundamental prerequisite for Yemen's recovery, but short-term measures are also needed to avoid a humanitarian catastrophe. These

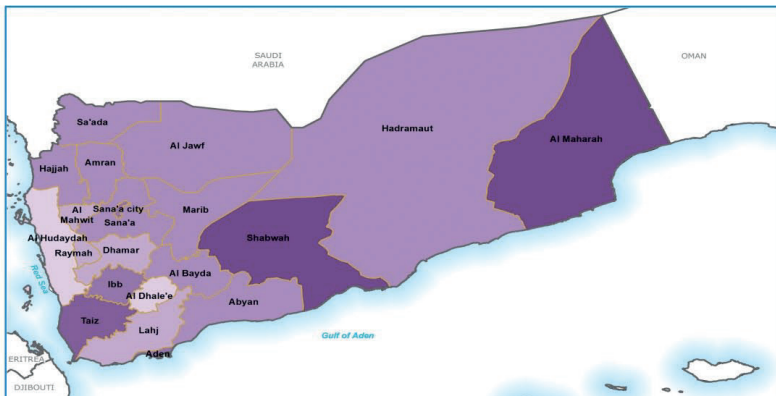
include international support to cope with (1) the liquidity crisis to finance essential public expenditures and (2) the critical food shortage. Different types of support and response are needed, including increased humanitarian assistance, and the reinstatement of salary payments and social protection programmes.

24. As per the FAO definition, the depth of hunger is measured by the average dietary energy deficit of undernourished people (below the 2,100Kcal/day threshold) expressed in kilocalories per person per day. The higher the number, the deeper the hunger.

25. Increase/decrease in metric tons of food aid in cereal equivalents needed to fill the depth of hunger, compared with current assistance planned.

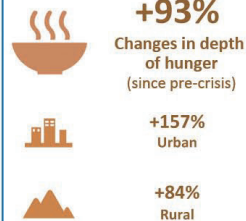
**Annex 1. Simulation results**

**SCENARIO 1 (current scenario)**



*Assumptions: 50% cut on income (public, private and agricultural sector salaries), no social benefits, prices at current level (Sept. 2016)*

**DEPTH OF HUNGER**



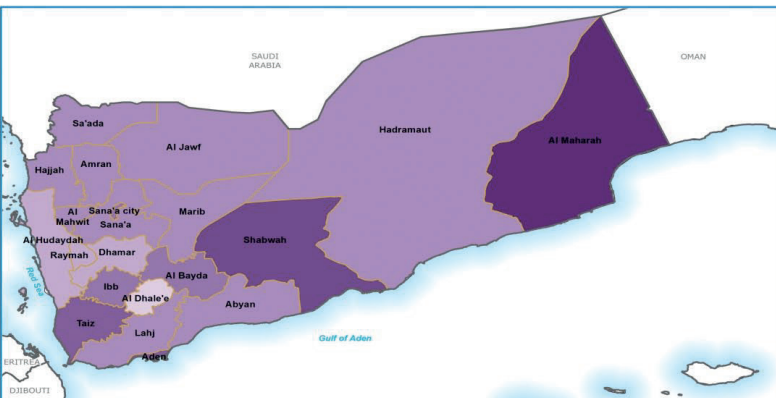
**FOOD SECURITY**



**FOOD ASSISTANCE**

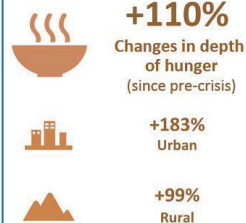


**SCENARIO 2 (most likely scenario)**

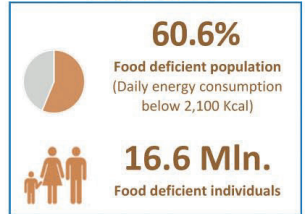


*Assumptions: Full cut of public income, 50% cut of salaries in other sectors, zero social benefits, prices at current level (Sept. 2016)*

**DEPTH OF HUNGER**



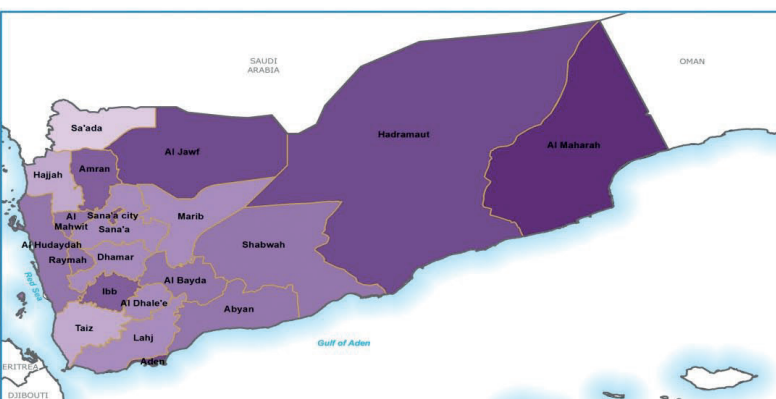
**FOOD SECURITY**



**FOOD ASSISTANCE**

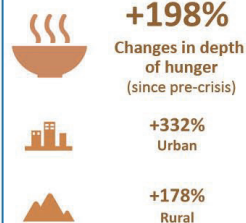


**SCENARIO 3 (worst case scenario)**



*Assumptions: Full cut of public income, 50% cut of salaries in other sectors, zero social benefits, prices of Oct. 2015 (higher than current)*

**DEPTH OF HUNGER**



**FOOD SECURITY**



**FOOD ASSISTANCE**



The colour in the maps illustrates the degree of changes in the depth of hunger compared to pre-crisis period (a darker purple indicates a greater change in the depth of hunger).

## Annex 2. SISMod methodology and limitation

### Methodology

To estimate the impact on food security of the situation in Yemen, we have used the Shock Impact Simulation Model (SISMod), a partial equilibrium model jointly developed by FAO and WFP.<sup>26</sup> The simulation aims at replicating the economic behaviour (consumption patterns) of households in the event of a shock to their income and to market prices. The translation of a shock in economic terms will result in a shock impact, expressed in ratios between the baseline period and the simulated period in income, food prices and consumer price indicators. The economic behaviour of each household is modelled

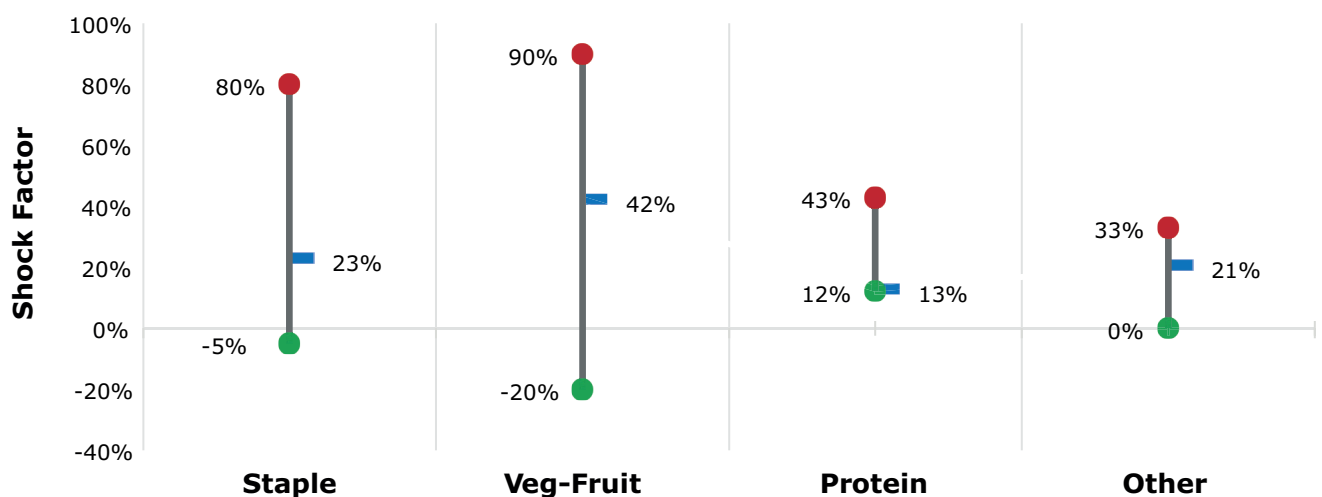
through a Linear Expenditure System (LES) and a Linearized Almost Ideal Demand System (LAIDS). This results in a matrix of coefficients that express how the allocation of disposable income to food will change and how this change will affect the diet of the household, by either increasing or reducing its food deficiency. The simulations use the Comprehensive Food Security Survey (CFSS) conducted by WFP in 2014. Data are compared to the baseline (pre-crisis) as well as to the latest estimation done in May 2016 and in line with IPC results of June 2016.

### Price shocks

The price shocks extracted from the VAM Yemen Automated Market Analysis Tool (AMAT) are updated with September data. The price shocks represent the price spikes compared to pre-crisis levels (February 2015). Accordingly, the four main food groups (staple, vegetables/fruit, protein and other) have been shocked with shock factors that varied

within the country because of the weak market integration. For example, staple food prices changed from the pre-crisis period by -5 percent in some governorates and by 80 percent in others. Figure 4 shows more details on the shock factors that were plugged into the model.

Figure 4. Food group price shock factors



Source: AMAT, September 2016 vs. pre-crisis prices.

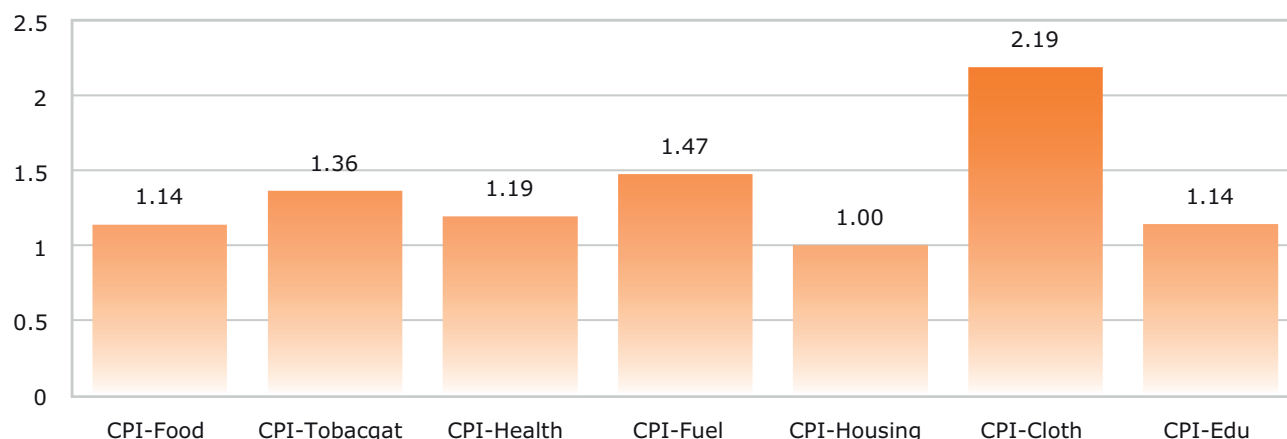
### CPI

The most recent published data on the CPI in Yemen is from November 2014. The October 2016 CPI for the main six commodity groups has been estimated

based on the available data. Figure 5 shows the estimated CPI of October 2016 against a baseline of March 2014.

26. The analysis is carried out using the 'light' version to overcome data availability limitations. For more information, see <http://faowfpmodel.wix.com/sismod>



**Figure 5. CPI Yemen - October 2016 (Estimated Values)**

Source: Authors' estimations.

### Population demographics

Population data is the same used in the IPC in July 2016. The following key information and sources were used as inputs for the affected population estimation process:

- The 2016 projected population of Yemen by governorate (CSO, May 2016).

- IDPs numbers by governorate (TFPM, April 2016).
- The food consumption score (FCS) by governorate and IDPs/non-IDPs (WFP/mVAM, May 2016).

The total population is 27.4 million.

### Limitations

The baseline used for testing these scenarios is the CFSS 2014. This survey reflects a different demographic, economic and food security profile for the households than the current situation. Because of the ongoing war, which started in March 2015, millions of Yemenis have been internally displaced in a bid to flee from the conflict. In addition, the prolonged military operations in Yemen have drastically affected the population income and increased the cost of living nationwide.

The result of these factors may be a different household economic/consumer profile. To overcome the lower estimates of the absolute numbers of the shocked consumption in Kcal, depth of hunger and quantity of food needed, WFP generated a change percentage of the shocked values compared to the baseline values.

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