

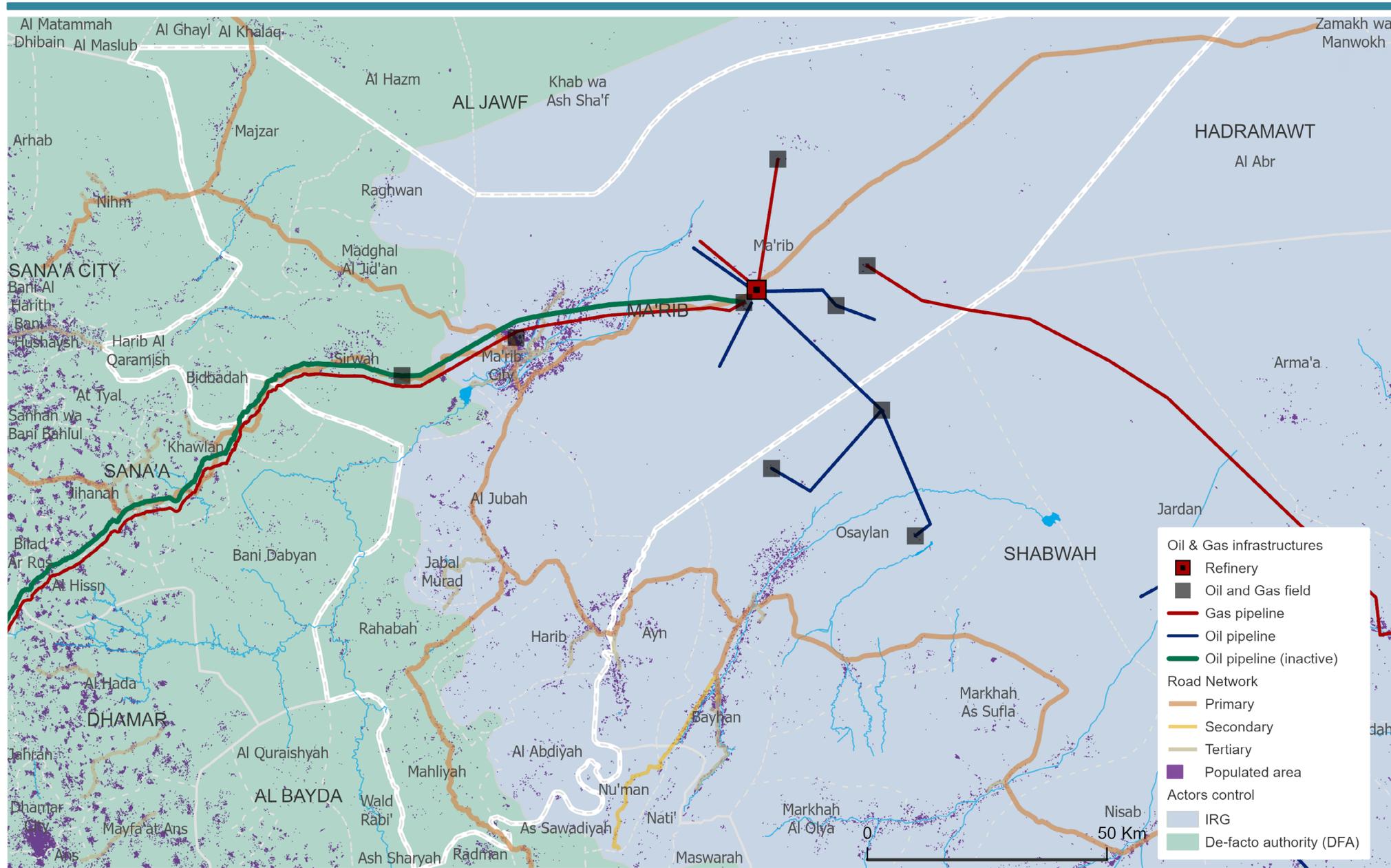
# CONFLICT ESCALATION IN MARIB AND POTENTIAL HUMANITARIAN AND ECONOMIC IMPACTS: SCENARIO

---

How might conflict developments in Marib affect displacement and the economy in Yemen?



# Marib Governorate: Oil and Gas Infrastructures, Road Network, Actors Control Areas



Creation date: 26 April The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the Satellite Applications Catapult and partners

Sources: ©OpenStreetMap; Admin boundaries: OCHA; Oil & Gas: U.S. Energy Information Administration, IHS EDIN; Actors control areas: ACAPS; Populated area © Facebook Connectivity Lab and Center for International Earth Science Information Network - CIESIN - Columbia University. 2016

## TABLE OF CONTENTS

1. Why is Marib relevant?.....	4
2. The current situation as at June 2021 .....	4
3. Scenario .....	7
4. Background .....	12
5. Limitations of the report .....	13
6. Reliability.....	13
7. Annexes: economic estimates .....	13

### Aim

The purpose of scenario-building is to understand the range of possible futures resulting in distinct situations with (usually) different humanitarian outcomes. The goal of this scenario is to:

- support strategic planning for agencies and NGOs
- identify assumptions underlying anticipated needs and related interventions
- enhance the adaptability and design of detailed assessments
- influence monitoring and surveillance systems
- create awareness, provide early warning, and promote preparedness activities among stakeholders.

This report focuses on the (unlikely but possible) scenario in which the Houthis take full control of Marib city and governorate. It includes displacement estimates related to increased conflict in Marib and the impact of revenue loss from Marib resources on the economy of the Internationally Recognized Government (IRG).

### Methodology

This scenario is based on data analysis, satellite imagery, key informant interviews, and inputs from a scenario-building workshop ACAPS held at the beginning of March 2021. The maps provided in the report have been developed by Satellite Applications Catapult using satellite imagery from 11 April 2021 combined with IOM data on IDP sites, as well as OpenStreetMap data to identify hospitals, schools, and other key infrastructure in Marib city. Displacement estimates are based on the analysis of previous trends combined with assumptions from the current scenario. Experts' reviews and feedback were also integrated into this report to expand on specific issues raised during the workshop and review of secondary data. For more information on how to build scenarios, please see the [ACAPS Technical Brief on Scenario Development](#).

## KEY TAKEAWAYS

The battle of Marib could potentially tip the balance between the IRG and the Houthis. Marib is a key source of economic income thanks to its natural resources. Taking control of the city and of oil and gas facilities would provide significant additional income to the Houthis while ridding the IRG of its last foothold in the north, resulting in additional humanitarian needs.

- **An estimated 500,000 people could be displaced if the Houthis take Marib city and Marib Al Wadi.** Conflict and displacement would disrupt access to livelihoods and needs for cash, food, shelter, WASH, and protection support.
- By winning control of the oil and gas facilities, **the Houthis stand to gain revenues estimated between USD 1.3 and 5.5 million per day**, which is likely to change the power balance in the country. **The IRG would lose at least USD 19.5 million per month** from the loss of crude oil exports.
- Loss of crude oil export revenues and the need to import more fuel and gas to cover local demand (if the Houthis divert this to other areas under their control) would put **pressure on IRG foreign currency reserves, further depreciating the Yemeni rial (YER) and increasing food prices** throughout the country.
- As prices for fuel and gas increase in Marib and other IRG-controlled areas and payment of public servants' salaries is disrupted, **many households will see their purchasing power decrease**.
- **Some households in IRG areas will see remittances decrease** from the loss of income of family members who were working in Marib, further aggravating the microeconomic situation and pushing people to adopt negative coping strategies.
- While the rial in Houthi-controlled areas is not expected to deteriorate, **prices of goods transported from the south to Houthi areas are likely to increase** as a result of the depreciation of the rial in IRG areas.



## 1. WHY IS MARIB RELEVANT?

### Resources and revenues

Historically a quiet province with a small capital city, Marib is significant for both geoeconomic and geopolitical reasons. Marib is home to Yemen's largest oil fields, and it is the only governorate producing natural gas. A natural gas pipeline extends from Marib to the southern port of Balhaf, and an oil pipeline passing through Marib continues to the Ras Issa port near Al Hodeidah in the west (although the latter is currently not in use because of the conflict). Marib also houses the country's largest power plant. The revenues generated by the export of crude oil produced in Marib make up 25% of Yemen's total gross domestic product. Marib also borders oil-rich Shabwa and Hadramawt governorates.

### Political symbol

Marib is a political symbol and defence stronghold: the last governorate under IRG control in the north, it hosts three of the government's regional military headquarters and the Minister of Defence office. Tribes in Marib have largely remained loyal to the IRG, still fighting against the Houthis; any change in allegiance would further weaken the IRG.

### Trade hub

Despite the conflict, Marib has experienced relative stability. The local economy has flourished mostly thanks to revenues from the sale of gas and refined oil products, which have been used to increase the provision of services. The influx of IDPs from northern areas, most of whom settled in Marib city, also contributed to residential expansion and economic diversification, with new businesses offering basic goods and services thriving. Marib occupies a strategic location, connecting the Houthi-controlled capital Sana'a with southern IRG-controlled governorates and Saudi Arabia in the north.

### Internally displaced people

From a humanitarian perspective, Marib has been a safe haven for hundreds of thousands of people who feared living under Houthi control in northern areas – not only for security reasons but also ideological matters. As the only relatively stable and prosperous city in the country for the past five years, Marib has also seen significant inward migration. Around 1.5 million IDPs currently reside in Marib, 70% of whom live in Marib city and Marib Al Wadi. The largest displacement towards Marib took place in 2015, but internal displacement has been continuing as a result of recurrent hostilities. While many IDPs live in rented accommodation and within host communities, around one million people live in makeshift shelters in formal and informal camps where access to water, sanitation, and other basic needs is limited.

## 2. THE CURRENT SITUATION AS AT JUNE 2021

### 2.1 Conflict dynamics

The fight for Marib saw escalations of conflict in January and August 2020. Throughout 2020, the Houthis gained control of some western parts of the governorate but remained outside Marib city and far from the oil and gas fields, while gaining territory close to the dam in the southwest border of the governorate.

The latest offensive started at the beginning of February 2021 with clashes intensifying on the main frontlines to the west of Marib city from Sirwah district, around the Marib Dam in the south of the governorate, and along the border between Marib and Al Jawf, as the Houthis reinvigorated their efforts to push into Marib. Intense airstrikes were reported across the frontline areas, as well as increased cross-border attacks by the Houthis into Saudi Arabia. The number of conflict incidents involving civilians in Marib increased significantly in March 2021, mostly on account of airstrikes (CIMP newsletter 16/03/2021). The hostilities have made it difficult to determine the number of civilian casualties, but combatant casualties are high on both sides. Marib city and Marib Al Wadi remain under the IRG control, along with Al Abdiah, Al Jubah, Harib, and Jabal Murad districts. The oil and gas fields in the eastern part of Marib are also under IRG control.

Marib likely hosts around two million people, including 1.5 million IDPs and 500,000 host population. While official OCHA estimates put the population at only 1.1 million, this figure includes less than 300,000 local population, which is only slightly above the 2004 census figure (CSO accessed 03/05/2021; OCHA 23/02/2021). Most experts think the population would have at least doubled in the last 17 years as a result of natural population growth. The governorate's office for statistics report that up to three million people could be living in Marib, including 2.5 million IDPs (UN Habitat 08/04/2021).

### 2.2 Humanitarian impact

The fighting has taken a particularly heavy toll on IDPs, who have been forced once again to flee. This puts further pressure on host communities, where resources were already overstretched.

- Overall, between January 2020–January 2021, an estimated 105,000 people have been displaced to and within the governorate, mostly moving to Marib city and Marib Al Wadi, which offer more livelihood opportunities and humanitarian assistance.
- Since the offensive of February 2021, over 20,000 people have been displaced within the governorate – the vast majority from and within Sirwah district (IOM 24/05/2021).



- Two health centres in Sirwah have suspended activities following the escalation of conflict, and at least four camps have been completely evacuated in the northern part of the district. There are currently 115 displacement sites in Marib, hosting 150,000 people (CCCM 15/06/2021). The majority of IDPs are residing in makeshift shelters in displacement sites or informal settlements; 60% of them need shelter support (IOM 24/05/2021). Informal IDP sites are located on private land with no formal land agreement between authorities and landowners, putting IDPs at constant risk of eviction.
- Around 6,000 African migrants are living in Marib city; most of them have been stranded for over seven months because of movement restrictions related to COVID-19 and conflict (MSF 11/03/2021). There are also reports of migrants in other northern areas being forcibly recruited by the Houthis to fight on the frontlines.

## 2.3 Humanitarian response

Since hostilities escalated in February 2021, humanitarian responders have tried to scale up their response. A Regional Coordination Team for Marib was established in March (replacing the Marib Coordination Taskforce) to facilitate response coordination across the governorate, in line with the Marib Operation Plan. According to the plan, responders will provide urgent, life-saving assistance to newly displaced people over a 90-day period from their arrival to displacement sites in Marib (OCHA 12/03/2021).

According to OCHA, there are around 25 humanitarian organisations in Marib, including seven UN agencies, six INGOs, and 12 national NGOs. In December 2020, Marib city and Marib al Wadi and Sirwah districts recorded the highest presence of humanitarian organisations in the governorate, followed by Raghwan, Medghall, Al Jubah, and Rahabah districts (OCHA 18/02/2021). Sirwah district has been significantly affected by the latest offensive, and humanitarian presence might have reduced. Out of 150,000 IDPs in 115 displacement sites in the governorate, only 21% of sites and 56% of the individuals are covered by the Camp Coordination and Camp Management Cluster, suggesting that the level of unmet needs is high.

Most clusters are operational in Marib, and IOM is the lead UN agency coordinating response efforts in the governorate (OCHA 18/02/2021). UNFPA continues to provide immediate assistance to those newly displaced in Marib through the activation of the Rapid Response Mechanism (UNFPA 28/04/2021).

## 2.4 Access constraints for humanitarian responders

Insecurity along the frontlines is increasingly hindering the delivery of assistance to Marib. Humanitarian access to some of the most vulnerable communities near the conflict points remains restricted, making it difficult to understand the needs of the most vulnerable. Response initiatives are in place but limited, and the number of new IDP arrivals exceeds current capacity. Increased influx of IDPs into overcrowded sites stretches response capacity, and access to people displaced in remote areas is limited. Under normal circumstances, Marib city and Marib Al Wadi can be accessed via four routes. Three of these are now affected by increased fighting and related safety concerns, leaving only one accessible route to the east – from Marib city to Marib Al Wadi and on to Al Abr and Hadramawt governorate.

The three routes with accessibility challenges are:

- the road leading to the north-west from Marib city to Al Hazm district in Al Jawf
- the road from the west of Marib city to Sirwah and Sana'a governorates and Sana'a city
- the main road leading south from Marib city to Al Jubah and Jabal Murad districts and down to Harib district bordering Shabwa governorate; sudden clashes are taking place along this route, and increased fighting might make it inaccessible.

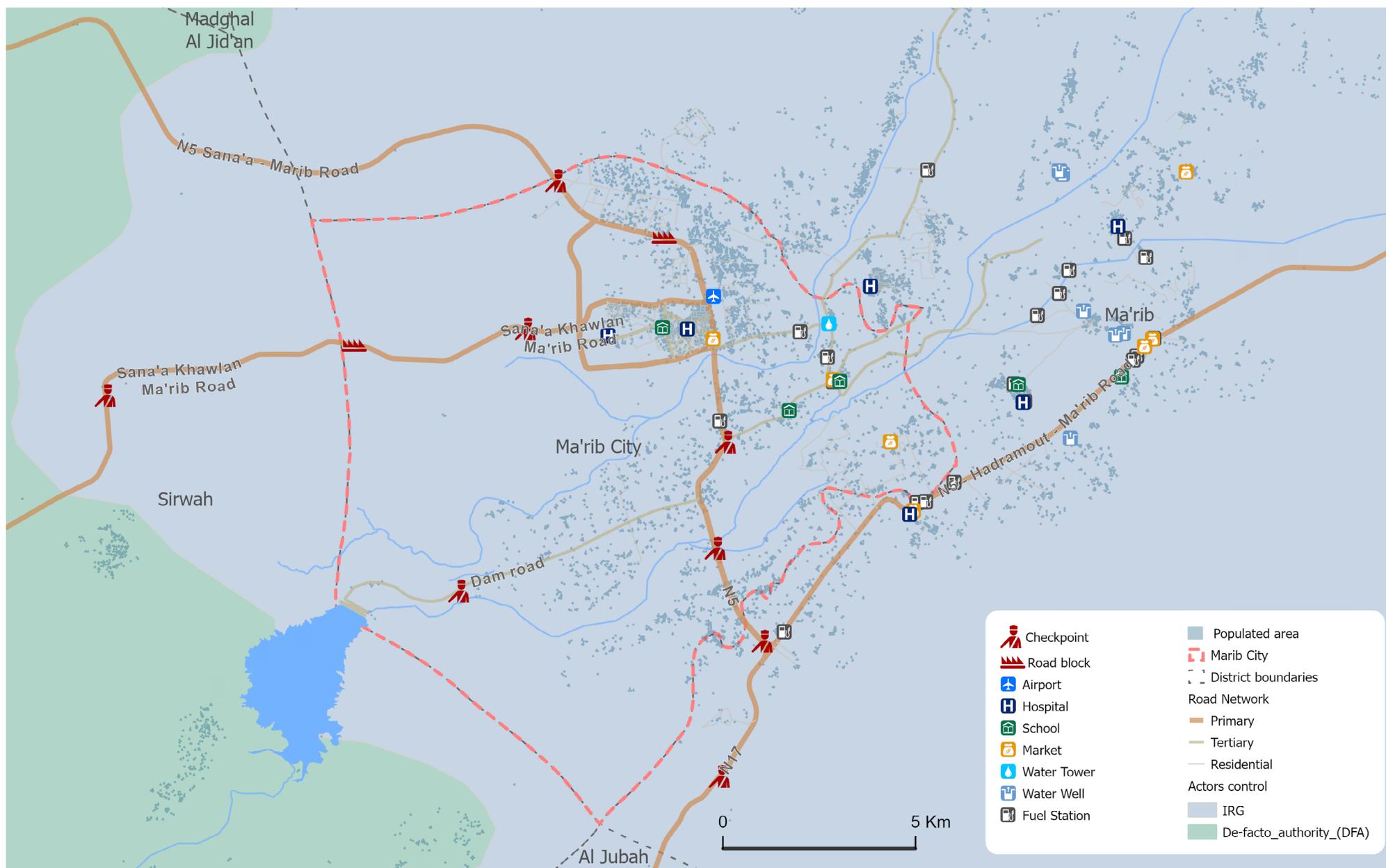
## 2.5 Marib city key infrastructure

Key infrastructure in Marib was identified by Satellite Applications Catapult through satellite imagery captured on 11 April 2021. In Marib city, it is concentrated on the eastern side and expands east outside of the district, where people would likely start moving towards as the Houthis approach from the west.

- 5 schools (2 just outside the city) showing no obvious damage and with little car movement around.
- 4 hospitals within Marib city and 2 immediately outside of it; no cars were seen by the rural hospitals. A high level of activity was observed around Al Ghurair Medical Complex and Marib General Hospital.
- 6 checkpoints within the city and 2 immediately outside on all primary roads; none on the Marib-Hadramawt road.
- 2 roadblocks (1 might be temporary).
- 6 water wells, all outside the city district, and 1 water tower within the city.
- 4 main markets within the city and 3 more outside.
- 14 fuel stations, half in the city and the rest to the east.
- 1 airport (not operational; construction was suspended in 2018).<sup>1</sup>

<sup>1</sup> In April 2021, UNHAS started operating flights between Aden and Marib once a week through the SAFER airstrip.

# Marib City: Key infrastructure



Creation date: 26 April 2021 The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the Satellite Applications Catapult and partners  
 Sources: ©OpenStreetMap: Admin boundaries: OCHA; Actors control areas: ACAPS; Populated area © Facebook Connectivity Lab and Centre for International Earth Science Information Network - CIESIN - Columbia University. 2016

### 3. SCENARIO



Possible changes in control over Marib include (1) a Houthi takeover, (2) a full besiegement of Marib city by the Houthis, and (3) a negotiated local peace and resource-sharing agreement. This report considers the scenario with the Houthis taking control of Marib city and of oil and gas infrastructure. In this scenario, a variety of impacts is possible depending on the conflict modalities and the ability of the Houthis to capitalise on Marib's resources.

#### 3.1 Scenario: the Houthis seize control of Marib city and of oil and gas facilities in the governorate

Conflict within Marib city persists for some days following the launch of an all-out offensive by the Houthis on the city, as Islah and IRG troops battle to retain control. While the Kingdom of Saudi Arabia continues airstrikes on Houthi fighters advancing on the city, the city itself is not targeted for fear of civilian casualties (see page 12 for Marib conflict stakeholders). The Houthis launch a successful assault on the oil and gas fields located east of Marib city and take control of the roads east across the desert and to the south.

The conflict is relatively short-lived, but with the Houthis taking control of the city, its effect is significant. Many Hadi loyalists and prominent IRG officials flee the city along with some of the population. The Houthis impose harsh control over those who remain, exacting reprisals on some. Elsewhere in Yemen conflict escalates – mostly in the south where the Southern Transitional Council (STC) takes advantage of a weakened IRG – while the prospects of peace recede rapidly. Conflict to the south of Marib also risks causing damage to the Marib Dam, which is used to store water to irrigate the plains. Structural damage could cause flooding, affecting IDPs' shelters and informal settlements in the surrounding area and impeding access to livelihoods.

The Houthis' decision to attempt to take control of the city is driven by a number of factors, including:

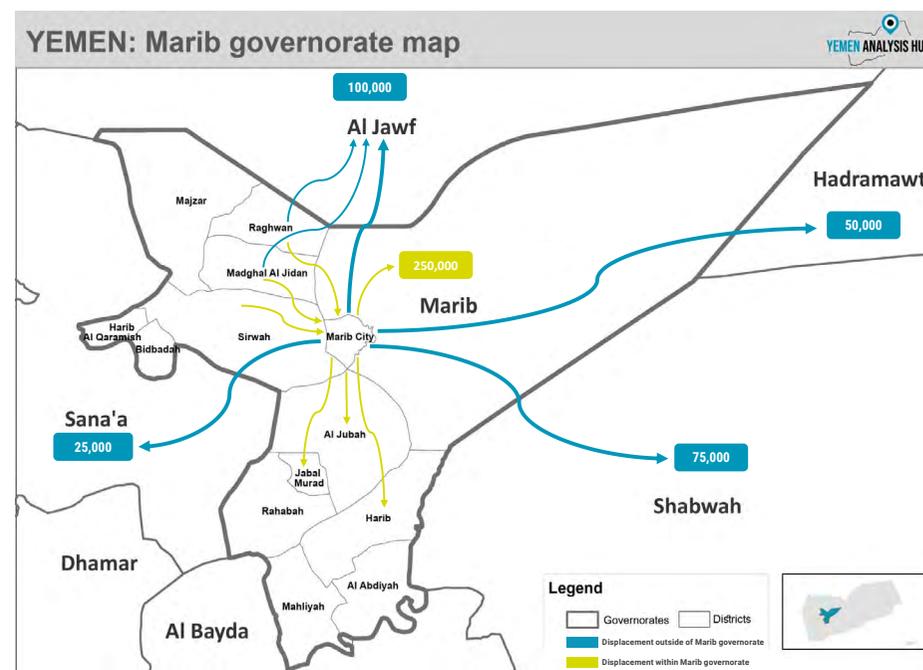
- the belief that control of Marib city would increase their negotiation leverage should the US seek to renew efforts for peace in Yemen
- the prospect of increased revenue and ensuring gas supply to Sana'a
- the expectation of additional income from controlling such a significant economic centre
- a perceived weakening of the IRG as Saudi Arabia and the coalition reduce support and anti-government protests increase elsewhere in the country

- encouragement from Iran, who views increased conflict in Yemen as a means of pressuring the US administration to restore its relations with Iran
- increased support of some tribes who switch loyalty sensing that the IRG is weakening.

#### 3.2 Humanitarian impacts

##### 3.2.1 Potential displacement

An all-out offensive on Marib city would induce further displacement and place the population at risk, driving an increase in humanitarian needs. The escalation of conflict would cause over 500,000 people to displace, mostly from one district to another within the governorate in search of safety and towards Al Jawf, Hadramawt, Sana'a, and Shabwah governorates. Most Houthi opponents in Marib would rather flee than live under Houthi rule. The majority of people, however, would be displaced as fighting spreads through the city and public services are interrupted. Many others, who either lack the means or do not escape in time, would become trapped in the city as the Houthis take control of entry/exit points and severely restrict movement.



Source: ACAPS

At least half of those displaced (around 250,000 people) are expected to remain within the governorate, with people moving towards safer districts as the Houthis approach from the west. This projection is mostly based on the analysis of displacement trends between 2014–2021, which showed that 80% of all displacement in Marib was within the governorate. The level of violence and length of the conflict will affect displacement patterns.

The second governorate estimated to receive high numbers of IDPs from Marib is Al Jawf (100,000 people), in line with previous trends. This is also assuming that the Houthis would mostly advance from the west towards Marib city. The remaining population would be displaced to Shabwa (75,000), Hadramawt (50,000), and Sana'a (25,000). Displacement from Marib to Shabwa has increased significantly since 2020 and is likely to continue. Although historical trends show no displacement to Hadramawt between 2014–2019, a few households moved to the governorate in 2020–2021; as conflict approaches Marib city and moves eastwards, more people would start moving towards Hadramawt. Because of Hadramawt's vast desert landscape, people fleeing to the governorate are likely to be very reliant on humanitarian aid, especially during the journey. While the majority of IDPs from Marib were displaced to Sana'a governorate and Sana'a city between 2014 and 2021, only a small number of people would be able to cross conflict lines and move west towards Sana'a in case of a full-scale offensive on Marib city.

Displacement from Marib to Taizz has increased since 2020 despite ongoing conflict in Taizz. This is most probably because of family connections as well as more similar cultural and social networks compared to closed locations such as Hadramawt. In this scenario, it is expected that some households will displace to other governorates, but would likely pass through those mentioned before.

### Protracted conflict

Should intense conflict within Marib city become protracted and more violent, including airstrikes on populated areas, displacement towards other governorates will likely be higher. Humanitarian needs will increase as most people lose access to livelihoods and essential services. Humanitarian access will be severely restricted, with organisations having to suspend activities and relocate. Conflict in other areas would see flares of escalations as the Houthis and the IRG try to draw the other party forces away from Marib.



Blue box shows the area of the assessment in the centre of Marib

### How many people could leave Marib by car?

In April 2021, 13,000 cars were counted in the most populated area within Marib city. An estimated 100,000 people (six people for each vehicle) could flee by car, but a major constraint would be the status of roads and how quickly people would be blocked by checkpoints and vehicles unable to move.

## 3.2.2 Access of people in need to essential services and aid

Access to basic goods and services will decrease for the newly displaced, those remaining in the city, and those dependent on the prosperity of the city. Even a relatively short, intense conflict within Marib city or in its immediate surroundings will negatively disrupt economic activity throughout the governorate. Both the urban conflict, which quickly reaches the commercial district (as Marib is a small city), and the change of governance would significantly disrupt access to markets and other business activities. As disruption to public services increases, basic needs will be increasingly unmet.

While access to essential goods and services is most restricted during active conflict, challenges would remain beyond the cessation of hostilities. Conflict in the city would cause little damage to infrastructure, especially as airstrikes and shelling reduce. As many people could be injured in the crossfire, it is likely that hospitals would be rapidly overwhelmed. Diseases – especially COVID-19 – are expected to spread rapidly and uncontrolled, aggravated by displacement and lack of access to healthcare and WASH services; however, exact figures will not be available because of lack of testing. The provision of electricity would be affected; in Houthi-controlled parts of the city, fuel could be seized. Food insecurity levels in Marib are expected to increase as a result of higher prices of basic commodities caused by Houthi control over supply routes, the higher cost of getting provisions in highly militarised areas, and multiple checkpoints charging fees. Food insecurity levels would likely be higher among IDPs who lose access to livelihood opportunities and become more reliant on humanitarian assistance.

Water and land are already major sources of tensions and could increase further with large displacement movements. Intercommunal relations are expected to be less of an issue among IDPs and host communities in Shabwa and Hadramawt thanks to the hospitality of the population in those areas.

## 3.2.3 Access of humanitarian responders to people in need

While needs increase, reduced humanitarian access as a result of violence, compounded by limited funding, will significantly affect the provision of humanitarian assistance. The need of humanitarian organisations to relocate to safer areas might attract the displacement of people towards where assistance becomes available. Should the conflict disrupt access to services for a prolonged time, an increased number of people will start needing a certain degree of assistance.

The rapid changes in lines of control would require INGOs to renegotiate access. If Marib city is controlled by the Houthis, organisations will have to renegotiate access with the Houthi-run Supreme Council for the Administration and Coordination of Humanitarian Affairs and International Cooperation, and Marib city would have to be reached from Sana'a instead of Aden and the south. Bureaucratic obstacles would cause delays to permission to operate and aid delivery.

The capacity to provide humanitarian assistance will be challenged by violence and physical access constraints, as well as reduced funding and fuel shortages. The geographical aspect of the eastern part of the governorate and the neighbouring ones, being prevalently deserts, is an additional challenge to the response.

### 3.3 Economic impacts

#### 3.3.1 Impact by areas of control

##### In Marib

Should the Houthis divert what is produced in Marib to other areas under their control, the loss of revenues would likely lead to the deterioration of public services in the governorate. Public servants' salaries are likely to be reduced, as the IRG would increasingly lack resources. Higher prices of oil derivatives, cooking gas, and some food commodities are expected to stretch households' budgets. While livelihoods in Marib will be temporarily disrupted by the conflict, most of those remaining in the city under Houthi control will be able to resume their work, and household income should not drop significantly. Heavier taxation of commodities coming from IRG areas into Marib would produce a higher income for the Houthis but increased prices for the population.

##### In IRG areas

A loss of revenue from Marib oil and gas production would affect IRG's ability to finance imports. This would result in the depreciation of the rial and the increase of food and fuel prices in IRG-controlled areas. The purchasing power of households living in IRG areas would reduce, inducing more households to adopt harmful coping mechanisms. The IRG would also lose resources to finance public salaries in Marib – which so far are being paid on a monthly basis unlike other areas – further stretching households' ability to afford basic needs. Some areas might see a further rise in prices as a result of increased demand from the influx of IDPs.

##### In Houthi areas

Depreciation of currency is not expected in Houthi-controlled areas. While they might not be able to export crude oil, the sale of refined fuel products and distribution of gas could be a significant source of revenue for the Houthis. Prices of goods transported from the south to Houthi-controlled areas are likely to increase as a result of the depreciation of the rial in IRG areas. Households' income will decrease for many, especially those displaced, who lose work in Marib.

#### 3.3.2 Liquefied petroleum gas (LPG) production in Marib

The SAFER-run LPG production facility in Marib is the main source of LPG (cooking gas) for the whole of Yemen. If the Houthis reduce gas supply to IRG markets, the IRG will have to import gas to meet domestic needs, putting more pressure on the currency value.

Although it is unlikely that the Houthis would be able to replicate the rent-seeking model they have established for the distribution and sale of LPG in Houthi territories elsewhere, they could increase the amount of fees and taxes charged to LPG transportation companies. Increased operating costs would presumably be passed on to the consumer, resulting in higher LPG prices in areas currently outside of Houthi control.

SAFER produces a total of 23,000 barrels per day (bpd) of LPG, the equivalent of 70–75 LPG trucks per day. An estimated 60–70% of the total LPG daily production is trucked to Houthi-controlled territories. Should the Houthis obtain access to the remaining 30% of LPG destined for IRG areas, they could seek to make a profit between USD 610,000 and 2.6 million per day. It should be noted, however, that total profit is shared among different stakeholders along the supply chain (ACAPS' discussions with operational actors). See table in Methodology Annex 1.

In addition to LPG, SAFER also produces and sells its own type of C5 autogas on the domestic market. The C5 is a blend of pure C5 autogas and high-octane gasoline. In April 2021, a total of one million litres were produced (550,000 litres of pure C5 blended with 450,000 litres of high-octane gasoline). SAFER currently uses the profit from C5 sales to cover its own operational costs, charging YER 450 per litre at the point of production, while the price of C5 at fuel stations is YER 500. The Houthis may look to increase the price of the C5 autogas to extract a higher percentage from the revenues (ACAPS' discussions with operational actors).

#### 3.3.3 Crude oil production and local fuel consumption

Currently, an estimated 18,500 bpd of crude oil is produced at Block 18 in Marib; 8,500 bpd are sent via a pipeline to the Marib refinery, while 10,000 bpd are set aside for the monthly crude oil export via the Rudum/Nushayma terminal in Shabwa. The IRG stands to lose about USD 19.5 million per month. While the Houthis will not be in a position to export crude oil, they could generate increased revenues from the domestic sale of crude oil and refined oil products – between USD 600,000 and 1.4 million daily. More direct access would help mitigate their current level of vulnerability tied to their dependence on fuel entering Houthi-controlled territories from external sources – either overseas via Al Hodeidah port or trucked overland from non-Houthi-controlled territories.

While a larger amount of crude oil is produced in Hadramawt on a daily basis (an estimated 33,000 bpd compared to 18,500 bpd in Marib), the crude oil produced in Marib holds greater value from a domestic fuel consumption standpoint. Marib Light crude does not require

much processing; it can be used directly in large electricity generators, heavy vehicles (such as those produced by Caterpillar Inc.), and water pumps (such as those used for qat cultivation). The sulphur-rich crude oil produced in Hadramawt is less directly useable, which partly explains why the majority of crude oil produced in Hadramawt (specifically Block 14) is exported out of Yemen.

Marib refinery receives a crude daily feedstock of 8,500 bpd. The refinery's daily production is estimated at 660,000–700,000 litres of petrol (the equivalent of an estimated 4,150–4,400 barrels) and between 460,000–500,000 litres of diesel (the equivalent of 2,890–3,145 barrels). Marib refinery also produces 150,000 litres of fuel oil (943 barrels) on a daily basis, but the fuel oil is exported via Shabwa and not used for local consumption. The amount of petrol and diesel produced at the refinery covers local fuel demand, with Marib city requiring around 600,000 litres of gasoline and 500,000 litres of diesel (ACAPS' discussions with operational actors).

Table 1. Marib refinery's daily production rates

	LITRES	BARRELS
Petrol	660,000–700,000	4,150–4,400
Diesel	460,000–500,000	2,890–3,145
Fuel oil	150,000	943
<b>Total</b>	<b>1,270,000–1,350,000</b>	<b>7,983–8,500</b>

Source: ACAPS' discussions with operational actors

From the estimated 18,500 bpd of crude oil produced at Block 18 in Marib, 10,000 bpd are set aside for crude oil exports via the Rudum/Nushayma terminal in Shabwa. Each month, a combined total of 600,000 barrels of crude oil are exported via Rudum/Nushayma; 50% (300,000 barrels) come from Marib's Block 18, while the other 50% come from some of the oil-producing blocks in Shabwa. The crude oil produced at Block 18 is currently trucked to West Ayad (Block 4), where it is then transported via a pipeline to the Rudum/Nushayma export terminal on the Shabwa coastline.

The Houthis may look to increase the amount of fuel sent to the Marib refinery; although its stated capacity is 10,000 bpd, during the conflict, there have been periods in which the amount of fuel sent to the refinery exceeded this capacity. As the quality of Marib Light crude lends itself to direct use in heavy machinery and can be easily processed for general consumption purposes, the Houthis could use the 10,000 bpd currently allocated for exports internally.

### 3.3.4 USD value of Marib oil and gas production

The trade value of Marib's total revenues from oil exports, refined products, and LPG amounts to USD 2 million per day based on Marib prices for oil products as reported by WFP in 2021 and the international price of 65 USD per barrel for exports (WFP VAM).

Table 2. Marib's potential total daily revenues based on official prices

	LITRES	BARRELS	OFFICIAL PRICES IN MARIB (USD)	TOTAL DAILY REVENUES (USD)
Crude oil	1,580,000	10,000	65 (international oil price)	650,000
Petrol	700,000	4,400	0,21 (per litre)	144,118
Diesel	500,000	3,150	0,71 (per litre)	352,941
Fuel oil	150,000	950	0,71 (per litre)	105,882
Gas	1,890,000	165,500 cylinders	4,12 (per cylinder)	681,471
<b>Total</b>				<b>1,934,412</b>

Source: ACAPS' discussions with operational actors

Should the Houthis be able to impose the much higher Sana'a prices or the vastly inflated parallel black-market-like prices charged in other areas under their control, they could increase the daily value of Marib's production trade up to between USD 2.4–5.5 million per day. Increased prices of oil derivatives in Marib are likely to affect households' purchasing power, leading people to adopt harmful coping strategies and increasing food insecurity levels.

Table 3. Marib potential total daily revenues based on Sana'a official and parallel market prices

	LITRES	BARRELS	OFFICIAL PRICE IN SANA'A (USD)	MINIMUM REVENUES BASED ON SANA'A PRICE (USD)	BLACK MARKET PRICE IN SANA'A (USD)	MAXIMUM DAILY REVENUES (USD)
Crude oil	1,580,000	10,000			0,50 (per litre)	790,000
Petrol	700,000	4,400	0,85	595,000	1,07	749,000
Diesel	500,000	3,150	0,85	425,000	1,07	535,000
Fuel oil	150,000	950	0,85	130,000	1,07	160,000
Gas	1,890,000	165,500 cylinders	7,5	1,260,000	20 per cylinder	3,316,000
<b>Total</b>				2,410,000		5,550,000

Source: ACAPS' discussions with operational actors

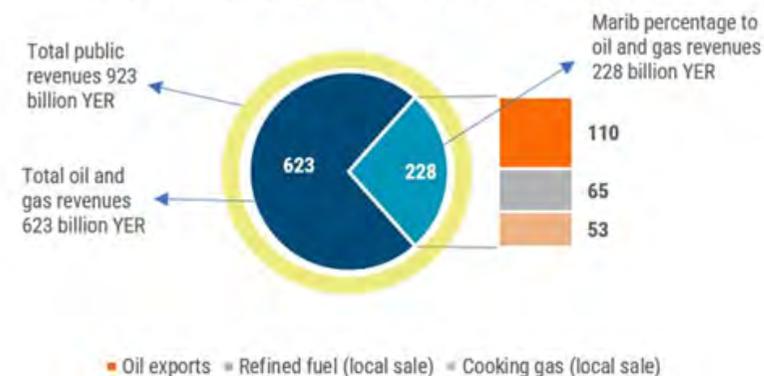
If the Houthis gain control of or disrupt Marib's crude oil exports, the IRG stands to lose USD 19.5 million per month (300,000 barrels multiplied by USD 65, the current value per barrel trading on the global fuel market). This represents around 22.5% of total IRG revenues (taking as a reference IRG's total revenues of USD 1.6 billion in 2019). This estimate has been adjusted based on a current exchange rate in Aden of around YER 890 per 1 USD, equalling USD 1 billion. The loss of crude oil exports would affect IRG's capacity to finance imports and affect the exchange rate for the rial used in its territories.

### 3.3.5 Contribution of Marib's resources to IRG's total revenues

Three-quarters of IRG's YER 923 billion public finance revenues in 2019 came from the oil and gas sector. Marib's total contribution to oil export and local sale of its refined fuel and cooking gas accounted for around a quarter of the total public revenues and over a third of the oil and gas total revenues that the IRG collected in 2019, equal to YER 623 billion (USD 1.1 billion).

It is important to note that Block 18 crude exports did not begin until the final quarter of 2019, and from late 2015 until June 2019, the IRG was not able to access the LPG revenues generated in Marib. With this in mind, the significance of Marib's oil and gas revenues is likely greater than that represented in the following chart – and so is the loss the IRG will incur if the Houthis take control of Marib.

### Marib oil and gas revenues to IRG total revenues (billion YER): 2019 budget



Source: IRG budget table 2019, ACAPS

### 3.3.6 Damage and disruption to oil facilities

Should fighting happen in the proximity of oil and gas fields, disruptions to the facilities could affect production. The timeframe for repairs would depend on the extent of the damage. Security assessments and protocols could take up to six months, but given the importance of Marib for local fuel consumption, the process would likely be accelerated. A delay of six months could cost up to USD 360 million in lost revenues (excluding repair costs). This is a maximum estimate, based on the current daily value of production and assuming all production is halted for six months. If damage does not affect all pipelines or facilities, this figure will be significantly smaller.

The Houthis are aware of the negative impact that reduced access to oil and gas revenues would have on the IRG and its ability to facilitate import financing and prevent further significant depreciation of the rial in areas outside Houthi control. If they are not in a position to take over the SAFER oil and gas facilities outright, the Houthis may look to disrupt the crude oil export line – specifically the trucking of fuel from Block 18 to West Ayad in Shabwa.



### 3.3.7 Houthi crude oil export prospects

If the Houthis gain control of Marib and the SAFER oil and gas facilities, it is unlikely that they would be able to export crude oil shortly thereafter. Current options include the Marib-Ras Issa pipeline (which has not been operational since 2015) and would also require a resolution to the floating storage and offloading unit (FSO) SAFER conundrum – the extraction of the 1.14 million barrels of crude oil currently on board and securing of the vessel. The Houthis are calling for the rehabilitation of the FSO SAFER to serve its pre-conflict role as a key export terminal, although this is unlikely given its age and condition. Other alternatives include the installation of a replacement vessel, but this would require additional time for a fuel tanker to be converted into a floating, storage, and offloading vessel. The most viable option would be for the Houthis to continue their military advance into Shabwa and gain control of the key export facilities along the Shabwa coastline, including the Rudum/Nushayma terminal where IRG is currently exporting crude oil from.

### 3.3.8 Electricity station

The Houthis will also have an eye on Marib's 340 MW gas-powered electricity station, which powered the national grid before the conflict. The national grid runs through the following areas: Marib-Sana'a-Al Hodeidah-Taiz-Ibb (Yarim)-Aden-Al Dhale-Lahj-Abyan (Ja'ar). Shortly after the conflict escalation in March 2015, the national grid went offline owing to a break in the circuit between Marib and Sana'a, leaving the Houthi-controlled northern and north-western governorates without their primary source of electricity. IRG-controlled areas would be vulnerable to Houthi management of the power plant, and the Houthis would need to fix the circuit between Marib and Sana'a in order to benefit from the power plant.

## 3.4 Political impacts

Events in Marib have a large potential to affect the situation elsewhere in Yemen. The fall of Marib to the Houthis would likely lead to the collapse of UN-sponsored peace efforts, opening a new chapter of violence in the country. As the Houthis are unlikely to be proactive in seeking peace, the conflict landscape would largely be determined by the actions of the IRG and STC.

Should the Marib conflict strengthen anti-Houthi sentiment throughout the south, unifying the pro-Hadi factions and numerous tribes in an unofficial anti-Houthi coalition with the IRG and STC, it may propel the conflict into another cycle of increased, widespread hostilities and push any prospects for peace further away. Conversely, if the IRG loses significant credibility and support, there will be a scramble for power in the south. This could allow the Houthis to push their advance into Shabwa and trigger further conflict. Alternatively, a local ceasefire and agreement to share resources with a strengthened STC would provide hope

for a wider peace process – albeit one in which international stakeholders would need to be more willing to engage directly with all parties. With the US and Saudi Arabia keen to end the Yemen conflict, any sign of progress will increase pressure on the international community to recognise the Houthis as a legitimate authority in Yemeni governance.

## 4. BACKGROUND

### 4.1 Marib conflict stakeholders

Local authorities include a mixture of tribal leaders and officially appointed staff aligned with the IRG, with the governor – Sheikh Sultan Al Aradah – acting as a central power. During the conflict, Marib has emerged as an example of effective local governance, enhanced by relative security, social cohesion, and economic resources (ACAPS 19/02/2021).

Marib's population has a strong tribal identity that has been a major factor in regulating society and local governance. There are seven main tribal groupings in the governorate. The Murad and Abidah tribes are the largest and most influential. Several leaders from the Murad tribe are loyal to the General People's Congress party and hold the greatest presence in state structures in Marib. The Abidah tribe is mostly present in the district of Marib Al Wadi, which covers the entire eastern half of the governorate and encompasses the oil and gas fields. The Abidah tribe swore allegiance to the Islah party (from the General People's Congress) after the war began and when former president Ali Abdullah Saleh allied with the Houthis (Sana'a Center for Strategic Studies 22/10/2020; ACAPS 14/08/2020).

Tribal identity remains predominant over political affiliation. In mid-January 2015, the two rival political parties declared their support to Marib's tribes in the fight against the Houthis in order to prevent them from entering the governorate (Sana'a Center for Strategic Studies 22/10/2020). The ability of local tribes to mobilise has enabled them to create a united front against the Houthis and effectively resist their advance to date. This said, tribes often adopt a pragmatic approach and, should they sense that the Houthis are on the verge of capturing Marib, they would probably make a deal with them.

The IRG remains present in Marib, and its presence is integral not only to its regional and international legitimacy but also to dispel rhetoric about the Houthis' invincibility. It is the IRG forces, heavily supported by local tribes, that have withstood the Houthi advance in 2021 – despite heavy casualties on both sides. The IRG in Marib is also supported by the Saudi-led coalition. Maintaining control of Marib is integral to the IRG's survival. The political arena in Yemen is fluid, with frequent changes in alliances between parties and even the creation of new political entities such as the Yemeni National Resistance who, among others, would be quick to take advantage should the IRG lose control of Marib.

## 5. LIMITATIONS OF THE REPORT

- Population figures for Marib vary significantly. Data from the last official census conducted in 2014 was not published, so figures from 2004 have been used instead for comparison. OCHA estimates for 2021 are only slightly above the 2004 census, suggesting that natural population growth has not been taken into account.
- While disaggregated data is available for population estimates, it is not the case for displacement figures. Disaggregation would be useful to better understand the most vulnerable groups and the different impacts of conflict on the population.
- ACAPS used 2019 data for oil and gas production volumes and total IRG revenues, as these are the most recent estimates providing a breakdown of oil production by site and because oil export revenues in 2020 were largely affected by the COVID-19 pandemic.
- ACAPS used analysis of previous displacement trends to, from, and within Marib to estimate potential displacement locations and the percentage of people displaced to each governorate, combined with current contextual constraints that might affect trends.

## 6. RELIABILITY



ACAPS has a significant level of confidence in the primary data received related to oil and gas production and moderate confidence in the estimates produced, as explained in the methodology annexes. Regarding displacement, estimate reliability is moderate since ACAPS could not carry out interviews or access information regarding IDPs’ intentions, and multiple factors could affect people’s decision to move to one governorate or another.

ACAPS assesses reliability based on data collection methodology, timeliness of data, sources and bias, and information gaps.

## 7. ANNEXES: ECONOMIC ESTIMATES

### Annex 1. How much would the Houthis stand to gain from gas production in Marib?

The SAFER facility in Marib is the main source of LPG for the whole of Yemen, producing a total of 23,000 bpd, which is the equivalent of 1,811 MT (1 MT = 12.7 barrels; 23,000 x 12.7 = 1,811 MT). An easier way of calculating total production is by checking the total number of LPG trucks that depart from the SAFER facilities each day and the number of gas cylinders on board. An estimated total of 75 LPG trucks depart from SAFER on a daily basis, each carrying 2,200 gas cylinders, for a combined total of 165,000 cylinders. Up to 70% of the total LPG daily production (115,500 gas cylinders) is trucked to Houthi-controlled territories, while 30% (49,500 gas cylinders) is sent to non-Houthi areas.

To ascertain how much the Houthis could potentially generate in terms of additional LPG revenue following the takeover of Marib and the SAFER LPG production facility, the formula used looks at current official and parallel LPG prices applied in Houthi-controlled territories. The official price is YER 4,560 per cylinder, while the parallel market price is YER 12,000 per cylinder. The current production cost that the Yemen Gas Company (YGC) charges to local LPG stations/bottling facilities is 2,350 nationwide, so a distinction can be made between total revenue and total profit generated, with an estimated 387,750,000 (2,350 x 165,000) going to YGC to cover daily production costs.

	70% OF TOTAL REVENUE (HOUTHI-CONTROLLED TERRITORY)	30% OF TOTAL REVENUE (IRG-CONTROLLED TERRITORY)	TOTAL REVENUE
Daily revenue generated from selling at official price of YER 4,560	YER 526,680,000 (USD 882,211)	YER 225,720,000 (USD 378,091)	YER 752,400,000 (USD 1,260,302)
Daily revenue generated at parallel-market price of YER 12,000	YER 1,386,000,000 (USD 2,321,608)	YER 594,000,000 (USD 994,975)	YER 1,980,000,000 (USD 3,316,583)

Total LPG revenues per day (exchange rate: USD 1 = YER 597)

YGC production cost (2,350 x 165,000) = YER 387,750,000 (USD 650,000)

Total revenue per day using official price of YER 4,560: 75 (trucks) x 2,200 (cylinders) x YER 4,560 = YER 752,400,000 (USD 1,200,000)

Total profit per day using official price: YER 752,400,000 – (production cost) = YER 364,650,000 (USD 610,000)

Total revenue per day using parallel-market price estimated at YER 12,000: 75 (trucks) x 2,200 (cylinders) x YER 12,000 = YER 1,980,000,000 (USD 3,300,000)

Total profit per day using black-market price: 1,980,000,000 – (production cost) = YER 1,592,250,000 (USD 2,600,000)

## Annex 2. What is the USD value of Marib's resources?

The total monetary value of Marib's oil and gas production for 2021 has been calculated based on different sets of prices. The production volumes for crude oil destined to exports and breakdown of petrol, diesel, and fuel oil refined in Marib are based on information shared with ACAPS by a reliable source within Yemen. These have then been multiplied by official prices in Marib and official and parallel-market prices in Sana'a as reported by WFP's Vulnerability Analysis and Mapping (VAM) in March 2021 and ACAPS' informers through Telegram groups.

### 1. Based on Marib prices (as reported by WFP VAM in March 2021), the daily total value of Marib's resources would amount to USD 1.9 million.

- Crude oil exports: 10,000 bpd from Marib x USD 65 per barrel (international price of oil) = USD 650,000 daily
- Petrol from the Marib refinery: 700,000 litres per day x USD 0.21 per litre = USD 144,000 daily
- Diesel and fuel oil from Marib refinery: 650,000 litres per day x USD 0.71 per litre = USD 459,000 daily
- LPG from Marib fields: 165,500 cylinders per day x USD 4.12 = 681,000 daily

These estimates do not take into account production costs, so it is not possible to estimate profit.

### 2. Using official and parallel-market prices from Sana'a, the total value of Marib's resources would increase significantly, up to USD 2.4–5.5 million.

#### Official prices in Sana'a

- Petrol, diesel, and fuel oil sold at the official price of USD 0.85 per litre (WFP VAM reported price in Sana'a) would generate a total of USD 1.1 million (1,350,000 litres x USD 0.85 = USD 1,147,500)

- Gas cylinders sold at USD 7.5 per cylinder would generate up to USD 1.3 million (165,500 cylinders x USD 7.5 = USD 1,260,000).
- Crude oil: because crude oil produced in Marib can also be used without too much processing, the Houthis could try to sell it at a discounted price, estimated at USD 0.50 per litre, which would generate an additional USD 790,000 daily.

#### Parallel-market prices in Sana'a

Although it is unlikely that the Houthis would be able to apply their rent-seeking model in Marib, ACAPS has estimated a total maximum revenue this could generate if they were able to apply black market prices on all oil derivative products and on gas cylinders.

- Petrol, diesel, and fuel oil sold at the black market price of USD 1.07 per litre would generate a total of USD 1.4 million (1,350,000 litres x 1 USD 0.07 = USD 1,444,500)
- Gas cylinders sold at USD 20 per cylinder would generate up to USD 3.3 million (165,500 cylinders x USD 20 = USD 3,316,000).

## Annex 3. IRG revenue loss

IRG revenue loss has been calculated only based on interrupted oil exports. The crude oil produced in Marib accounts for 50% (300,000 barrels) of the total crude oil exported via Rudum/Nushayma. An international price of USD 65 per oil barrel has been used to estimate the total loss of USD 19.5 million per month (300,000 barrels x USD 65 = USD 19,500,000). Because of limitations regarding production costs of oil derivatives at Marib refinery, and considering that daily production rates are just enough to cover for Marib's local demand, it is estimated that the IRG does not currently receive large amounts of revenue from the sale of petrol and diesel in Marib. ACAPS will conduct further work to assess Marib gas contribution to IRG revenues.

## THANK YOU

ACAPS would like to thank all organisations that provided inputs to this scenario report – both those that attended the online workshops and those that contributed via bilateral meetings. For additional information or to comment, please email [YAHinfo@acaps.org](mailto:YAHinfo@acaps.org).