

The Strategies of the Coalition in the Yemen War: Aerial bombardment and food war

Martha Mundy



Aerial bombardments on Sana'a, Yemen, Fahd Sadi, March 2016, Wikimedia Commons

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Conjuncture

This report gives an overview not available elsewhere of the impact of the Coalition bombing campaign on food production and distribution in rural Yemen and on fishing along the Red Sea coast. The timing of its release appears opportune. Press coverage of this forgotten war has increased; there is some diplomatic and political movement; and the report on human rights violations during the Yemen war, prepared under the aegis of the Group of Eminent Experts, has been submitted to the UN Human Rights Council in Geneva.¹ Warnings of the risk of mass starvation echo ever more shrilly.² It is high time that citizens, parliamentarians and civil organisations to do all they can to end a conflict now well into its fourth year. On the 6 September, a new UN-appointed mediator had announced discussions between two major Yemeni parties in the war (the internationally recognized Government of Yemen led by Abd-Rabbuh Mansour Hadi, based between al-Riyadh and Aden, and the “Salvation/Rescue Government” of Ansarallah and allies based in San‘a’, internationally designated as “the Houthi rebels” or “the de-facto power”). Following this announcement, the talks were postponed in the wake of a failure to provide certain safe passage for the delegation from San‘a’.

Mounting civilian casualties and recent atrocities resulting from Coalition bombing have brought press and political reaction to this long war.³ As part of the attack begun in June 2018 with the objective of taking the city of al-Hudayda, on 2 August the central fish market and the entrance to the main public hospital (to which wounded persons were being taken) were attacked.⁴ In the week

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In the transliteration of place names, the IJMES system has been followed in all cases save the city of Aden; this is spelt as common in English Aden, not ‘Adan as per IJMES transliterations.

before, health, water and sanitation centres to the south of al-Hudayda city had been bombed.⁵ On 9 August in the town of Dahyan, Sa'da Province a school bus carrying young boys was struck by what was identified as a US-made guided missile.⁶ And on 23 August, again south of al-Hudayda city, a bus carrying women and children was attacked.⁷ There was a pause, but again from early September the Coalition forces have renewed their sanguinary attempts to cut off and to seize the city of al-Hudayda.⁸ And on 16 September, after seizure, interrogation and release of 18 fishermen from the district of al-Khawkha, Emirati naval forces are reported to have fired a rocket on the departing boat carrying the fishermen, killing all but one.⁹

These atrocities receive attention from the UN Humanitarian Affairs Coordinator and the international press, but shielded by allies, the Coalition remains exempt from any independent investigation to determine legal responsibility and from significant international mobilization to stop the war in Yemen.¹⁰

Wider pattern of the war

Foci

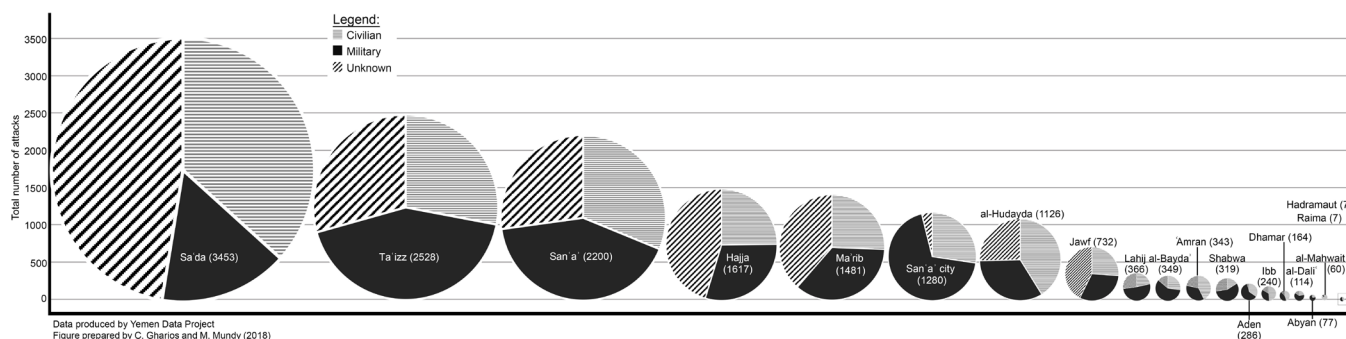
How do the attacks just described relate to the wider pattern of the war over the preceding years? The attacks on civilian targets described above occurred in two governorates of Yemen, which over the course of the first three years of the war, saw very high proportions of civilian as against military targets.

As Figure 1 reveals, prior to the on-going campaign in Tihama, the governorate of al-Hudayda had suffered less bombardment than had Sa'da or San'a governorates.¹¹

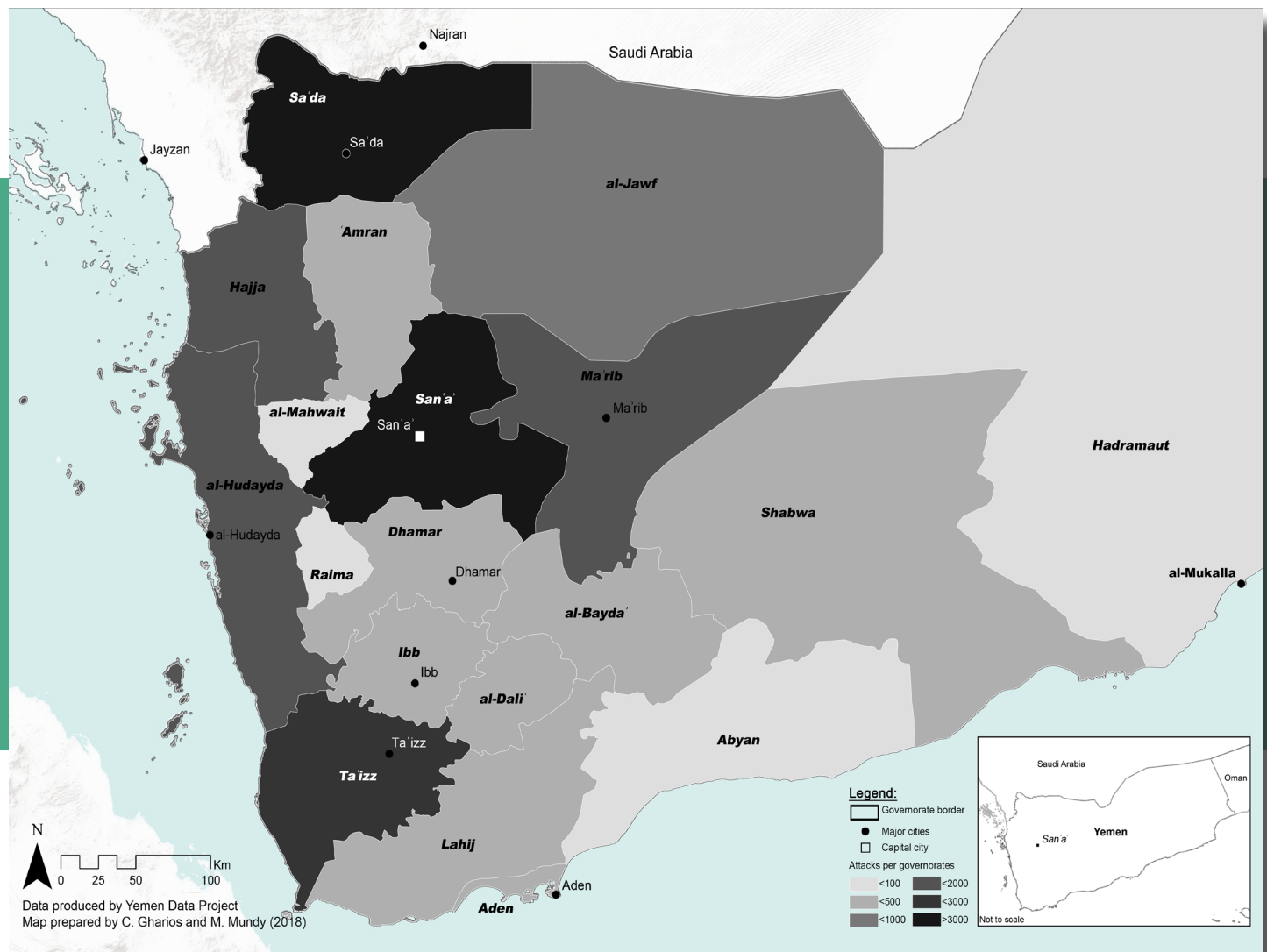
Yet the proportion of sites struck that were civilian in nature was comparable to that in Sa'da governorate.¹² (The increase of aerial bombardment in the central regions of Tihama following the campaign to seize the city of al-Hudayda from June 2018 is not included in the counts of Figure 1 and Map 1.) Al-Hudayda governorate contains not only port and road transport, but also light industrial enterprises (plastics, food processing, water bottling), fishing infrastructure, and an important agricultural area of the country. A largely rural area, Sa'da governorate, which abuts the border with Saudi Arabia, represents the historical homeland of the Houthi movement. In short, for Coalition planners, life in the first represents primarily an economic target and in the second a political and cultural objective; both are, moreover, agricultural areas. Beyond these, the city and governorate of San'a, if added together the most heavily hit zone, combine all kinds of objects, political, military, economic and cultural, which the Coalition has targeted.

Governorate boundaries, most evidently in the case of the coastal plain of Tihama, cut across natural geographical and social regions.¹³ The Tihama is divided administratively between three governorates: in the north Hajja, in the middle al-Hudayda, and in the south Ta'izz governorate. Map 2 shows the targeting incidents in the different governorates for districts in the Tihama.

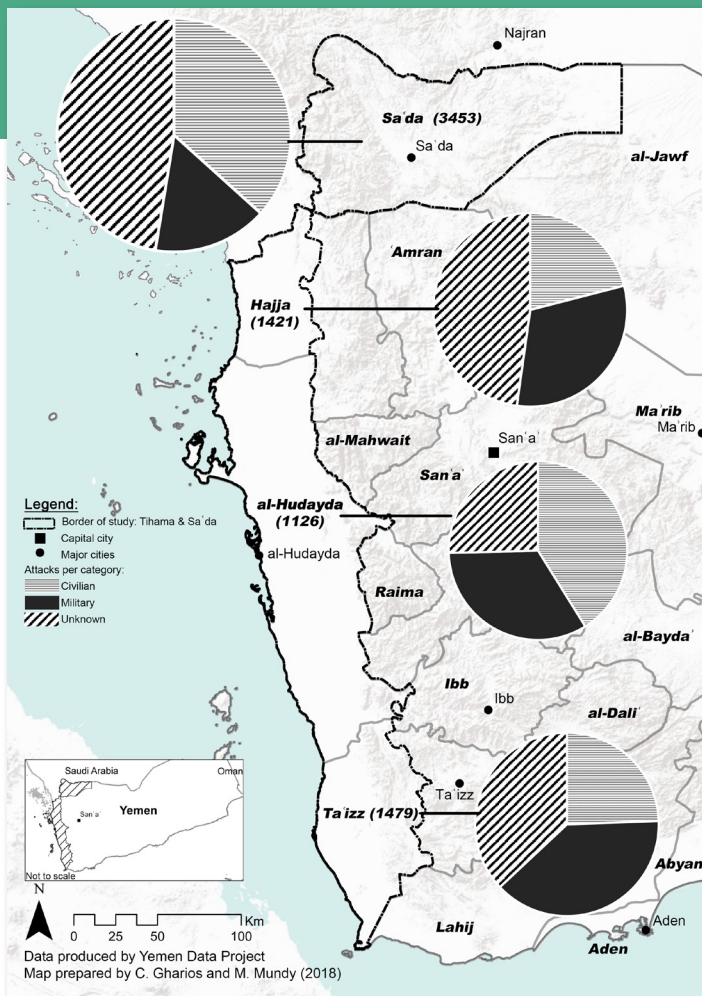
Figure 1. Proportion of civilian, military and unknown targets in governorates of Yemen. YDP data March 2015 – March 2018



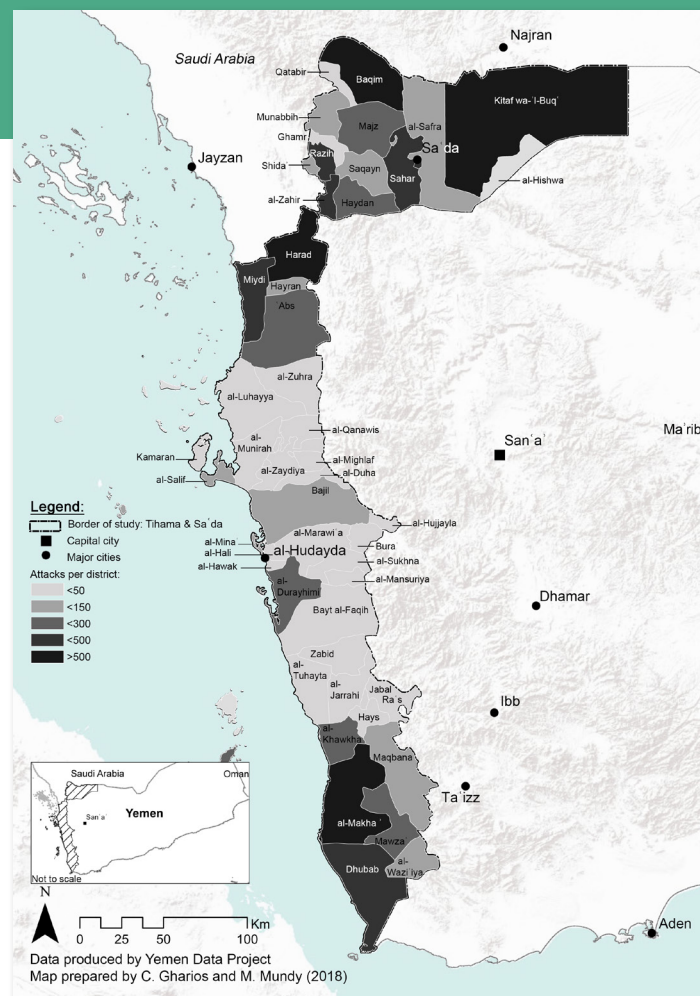
Map 1. Number of targeting incidents per governorate. YDP data March 2015 – March 2018



Map 2. Targeting incidents for Sa'da governorate and the Tihama. YDP data March 2015 – March 2018



Map 3. Frequency of targeting per district in Sa'da governorate and the Tihama. YDP data March 2015 – March 2018



The Tihama is a very hot, humid yet arid region but it is the most important agricultural region of the country, thanks to the flow of water from the highlands in a series of important wadi systems. (See Map 9 below.) To understand the impact of the war in Tihama, the analysis in this report will treat it as a distinct region.

STAGES AND STRATEGIES

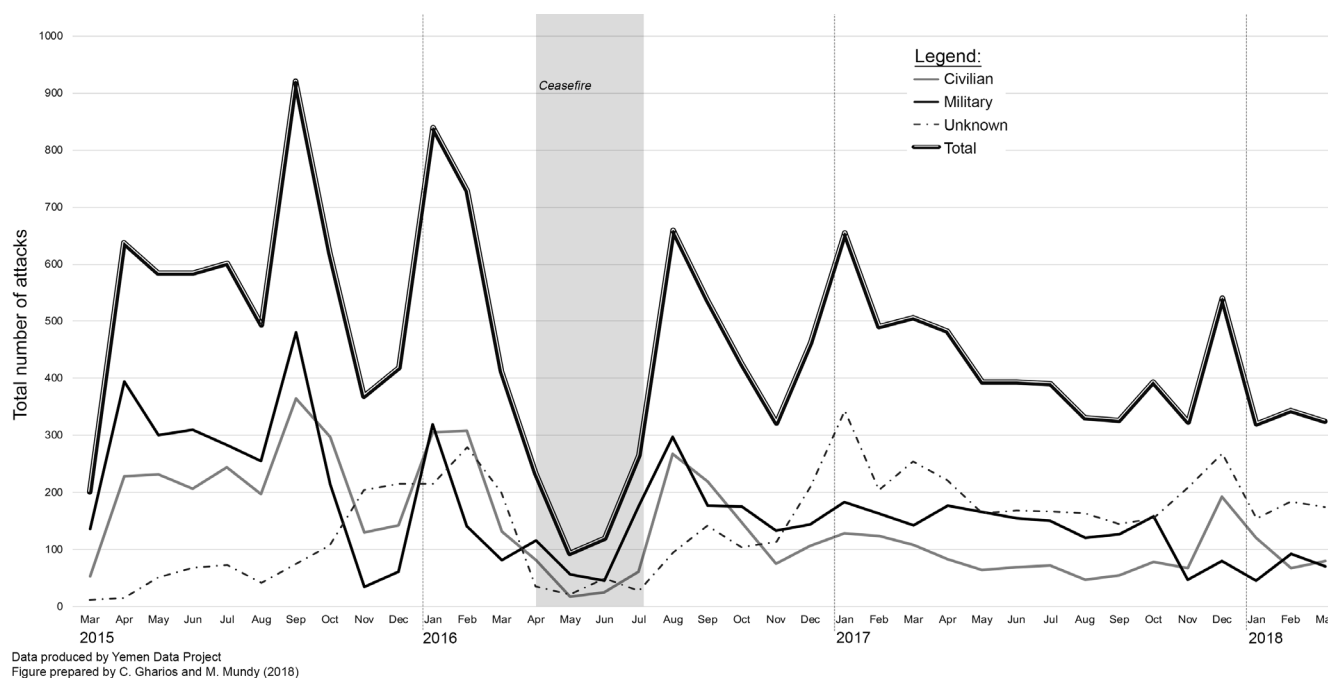
This has been a long war with, by now, several stages, regional fronts, and distinct tactics. In order to chart the major geographical shifts in the first three years of war, the interactive graphics of distribution of targets by governorate published by al Jazeera are useful.¹⁴ The al Jazeera maps can be read together with the graph we have prepared from the same Yemen Data Project data giving a breakdown of targets into military, civilian and unknown. In the YDP data, 'unknown' designates targets where the location and date are identified, but the nature of the object targeted is not clear. The high proportion of 'unknown' strikes does not affect the overall trends in the data, as there is no reason to suppose that they were strikes on military as opposed to civilian objects.

Taking the two together, one can distinguish major stages in the war. In the early months of the war, the targets were primarily military. Coalition air bombardment followed the advance of the forces of the Houthis ('popular committees') and Saleh-aligned army units as they moved southward to Aden, Hadi having declared the city the temporary capital. By August this ceased as the Houthis and allies withdrew from Aden and Lahij. The cultural and economic centre of the city of Ta'izz became the site of urban warfare between the forces loyal to San'a' and those linked to the Hadi government and Islah, and subsequently further divided between different militias on the latter side.

Around San'a' itself in the early months of the war, Coalition strategy appeared to combine massive attacks on military and government installations with spectacular implosion bombs a kind of 'shock and awe' demonstration.¹⁵ If this was supposed to produce the surrender of those governing San'a', it did not.

From August 2015 there appears a shift from military and governmental to civilian and economic targets, including water and transport infrastruc-

Figure 2. Timeline of Strikes. YDP data



ture, food production and distribution, roads and transport, schools, cultural monuments, clinics and hospitals, and houses, fields and flocks.

Yet the devastation of life in regions under the control of San'a' did not produce the surrender specified in UNSCR 2216 where alone the Houthis were required to hand over their arms prior to political negotiations.¹⁶ Negotiations in the autumn, not surprisingly, were to lead nowhere.¹⁷

Geographically from August the moving front in the war was Ma'rib governorate. Ma'rib is one of two oil-producing regions in Yemen. The San'a' forces were driven out by the end of 2015. Since early 2016 Ma'rib has been governed by a local governor, complete with own bank, linked to elements in the Islah party and the Saudi-led Coalition. Given its oil revenues (of which no part goes to San'a') it represents today a zone of relative prosperity.¹⁸

In the autumn of 2016 a further stage was opened in the war: economic war and sealing off of the country.¹⁹ San'a' airport was closed to all commercial flights and thus also to persons requiring medical treatment abroad.²⁰ Occasional blockades of al-Hudayda port were imposed. Most importantly, the central bank of Yemen was moved to Aden. This rendered money transfers to Yemeni banks more difficult, put the issuance of the Yemeni riyal in the hand of the Hadi government, and made it possible to cease paying the salaries of all government employees in areas under the control of San'a'. The government was the largest employer in the country, and the jobs concerned extend from medical staff to military personnel, from teachers to administrators; pension and other social payments were also halted.

Today Yemen is commonly described as the greatest humanitarian crisis in the world with 80% of the population requiring food assistance and with outbreaks of cholera that have affected more than a million people.²¹ The causes of that include not just the effects of the bombing campaign on the quality and quantity of food and water available (to which we shall return below) but above all the impact of

the deepening economic war from late 2016.²²

Commentary on the Yemen war often notes the complicity of the top-three arms-sellers (the US, the UK and France) in war crimes arising from the bombing campaign.²³ Moreover, it may mention their role in protecting the Coalition partners diplomatically. Yet their support for economic war – the major cause of starvation – is scarcely recognized.²⁴ Were that support acknowledged – support necessary for Saudi interception of ships already cleared by UN Verification and Inspection – perhaps it would render appeals to these powers for humanitarian aid ring hollow. At two critical junctures – the move of the central bank to Aden and the attack on the port of al-Hudayda – past and present US ambassadors to Yemen have offered their support.²⁵ It goes without saying that the Hadi government could not change international banking policy alone. And the Emirates-backed forces, which in early 2017 took the city of al-Makha' would not have moved northwards in June 2018 without a tacit green light from the major arms-selling powers.²⁶

While the US and UK back their Coalition allies unfailingly in their wider political and strategic objectives, the two major Arab actors in the Coalition, Saudi Arabia and the Emirates, have different economic priorities in the war. That of Saudi Arabia is oil wealth, including preventing a united Yemen's use of its own oil revenues, and developing a new pipeline through Yemen to the Indian Ocean;²⁷ that of the Emirates is control over seaports, for trade, tourism and fish wealth. The attack on al-Hudayda explicitly aims to complete the economic war militarily. That the immense suffering of Yemen's people has still not brought surrender by those in San'a' does not give credibility to the tactic of further hunger and disease. Yet for the Coalition, as a senior Saudi diplomat responded (off the record) to a question about threatened starvation: **"Once we control them, we will feed them."**²⁸

Rural Yemen and food production in the war

Yemen entered the war highly dependent on food imports.²⁹ Such food insecurity was the product of the country's incorporation since 1968 into the wider regional oil economy and the gradual adoption of economic and social policies that devalued local grain production, encouraged rural male labour out-migration, and marginalized women's rights and family planning.³⁰ Neo-liberal policies were in force in the north (former Yemen Arab Republic) since 1978 and in the south (former Peoples Democratic Republic of Yemen) since the 1990 national unification that formed the Republic of Yemen. The period was dominated by the rule (1978-2011) of the late president 'Ali 'Abdullah Saleh, but it was not he – at the outset a junior army officer with limited education – who designed those policies. They were the standard recipes of the Washington-dominated international development complex.³¹ The hopes of the 1960s and 1970s – where agricultural development, indigenous knowledge, and women's rights were projects for the liberation of the global South from Northern domination – were buried by the floods of subsidized wheat imported from the USA and of Yemeni rural male labour exported to Saudi Arabia and the Gulf.

Notwithstanding, before the onset of the war in March 2015 two-thirds of the country's population lived in dispersed villages and small towns,³² and over half of the population relied in part or in whole on agriculture and animal husbandry. As a mountainous country with irregular and at times torrential summer rainfall, the production of people and food over the centuries meant human (and animal) work to make the land that rendered life possible.³³ The imposition of an international 'market value' on Yemeni agriculture in abstraction from this elementary reality was an absurdity; the country responded by expanding the one crop, qat, not tied into the international market, but at the price of depleting fossil aquifers for it and other perishable market crops and of increasing inequality in land rights. Sites of food production, villages

are inevitably less 'visible' in the media than urban centres. But it is rural areas from which, an ILO/CSO survey seven months into the war tells us, already two-thirds of the internally displaced came, leading to a loss of almost 50% of the workers in agriculture.³⁴ Historically the mountain villages had been refuges. It is an indicator of the immiseration of the Yemeni countryside that, for the first time in Yemen's history, villagers have had to seek refuge on the outskirts of cities abandoning the countryside.

The ILO was exceptional amidst the international organisations in continuing to work during the first year of the war. In the years prior to the war, the international aid agencies loomed large not only in economic policy-making but also in data production concerning Yemen.³⁵ But when the Western embassies in San'a' closed mid-February 2015 as part of the run-up to the war, the international agencies, including the Food and Agriculture Organisation, halted their support to Yemeni ministries in San'a' (in what the head of the Cairo FAO office brushed off as a 'political decision').³⁶ Thus, the specialised agencies published little on the damage wrought by the Coalition.³⁷ The major 'development agencies' were only allowed to resume work in the course of 2016 on the stipulation that it be primarily humanitarian in nature.

Hence, in trying to understand the impact of Coalition bombing on small villages and rural production, we turned to data generated by Yemeni sources. These are of three kinds: first, the data compiled by the extension officers of the Ministry of Agriculture and Irrigation (MAI); second, data from the Yemen Data Project (YDP) compiled by local activists; and third, data on damages to fisheries of the Red Sea compiled under the aegis of the Ministry of Fish Wealth (MFW) in San'a'. The MAI data covers the period March 2015 – early August 2016, the YDP the first three years of the war (March 2015 – March 2018), and the MFW March 2015 to the end of December 2017. In the discussion below we shall follow the timing of their release, the MAI data having been available from April 2016 and updated until early August of that year;³⁸ the YDP data first

being made public in September 2016 and updated continuously since then (presently available on their website through March 2018); and the MFW data released in January 2018. The focus here is on food production and rural society but much else

was damaged in the same period: museums, historical buildings, mosques and mausoleums, schools, technical colleges and universities, government buildings, historical houses, and health clinics and hospitals.

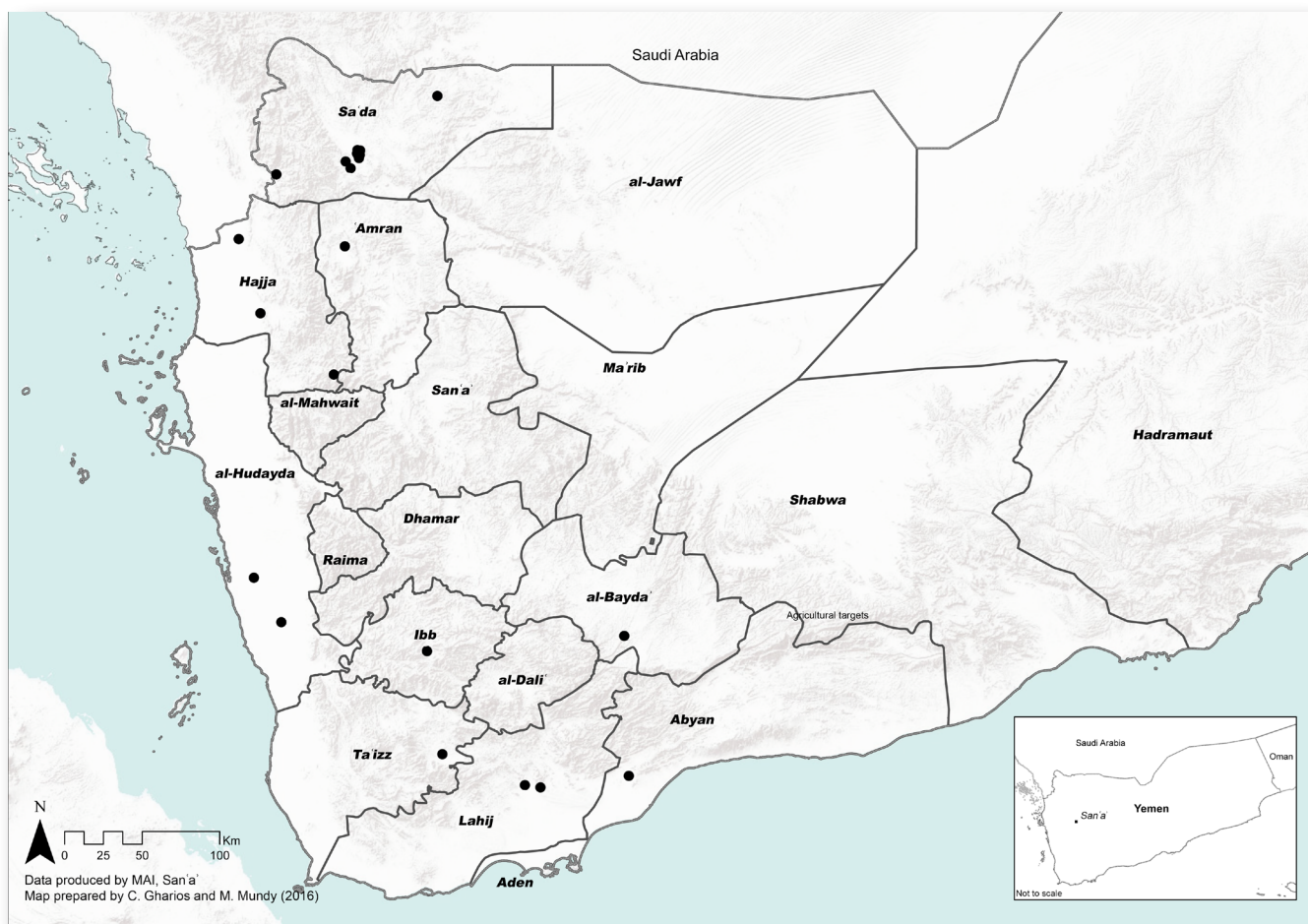
DAMAGE TO THE RURAL SECTOR AS REPORTED BY MAI EXTENSION WORKERS

For the period it covers the MAI data corroborates the patterns described above: March – May 2015 the focus of the Coalition was on military objectives not on productive capacity.

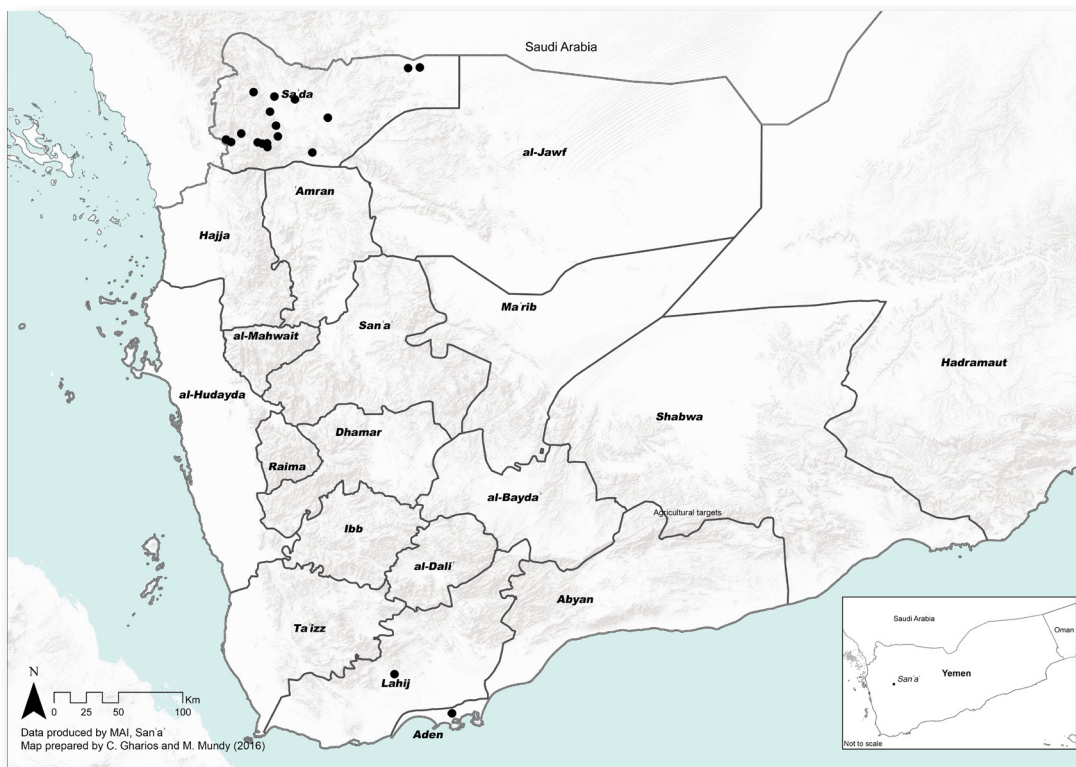
From June rural Sa'da began to be targeted before other agricultural zones of the country. Such attacks began to widen to other areas in July and August. And in September – October 2015 the Coalition deployed a strategy of hitting the resources of rural life heavily across wide areas.

Maps 4, 5, 6 and 7 show this sequence of targeting.

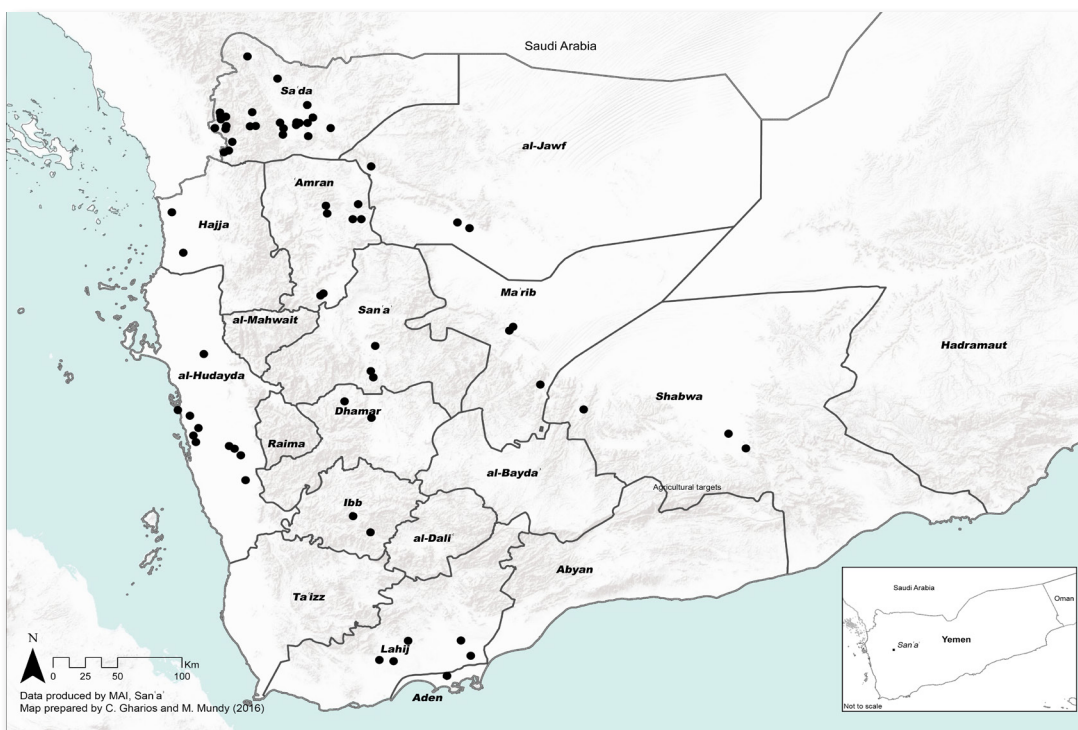
Map 4. Agricultural targets. MAI data March – May 2015



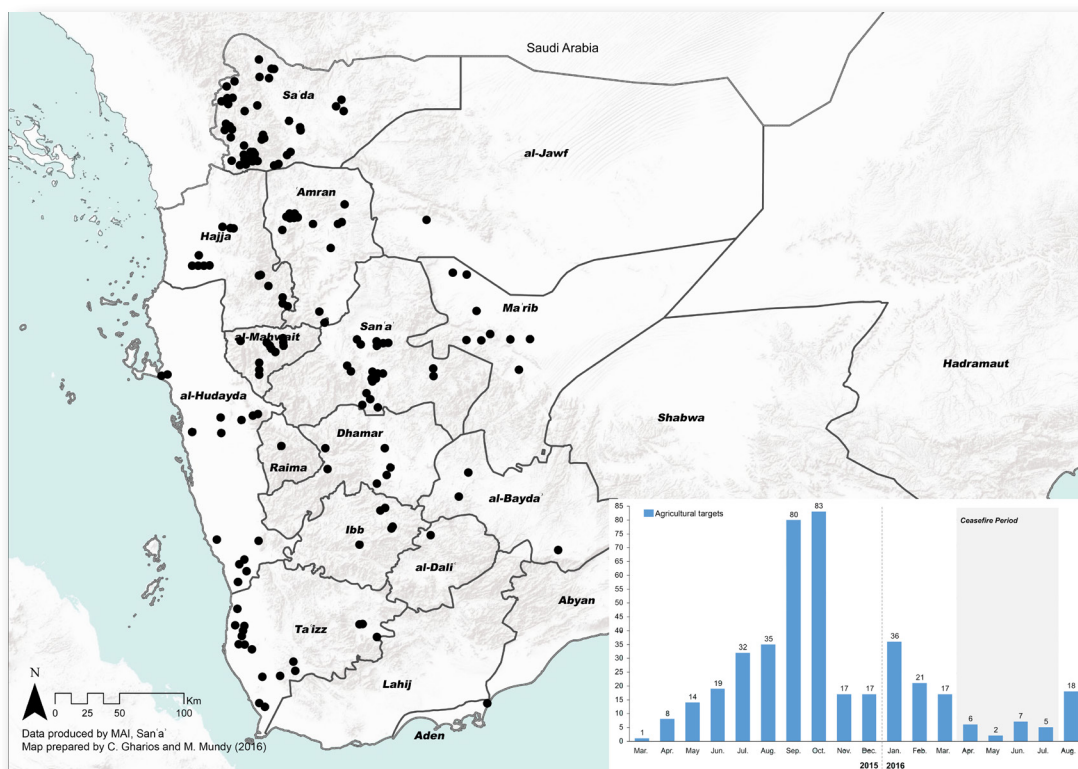
Map 5. Agricultural targets. MAI data June 2015



Map 6. Agricultural targets. MAI data July-August 2015

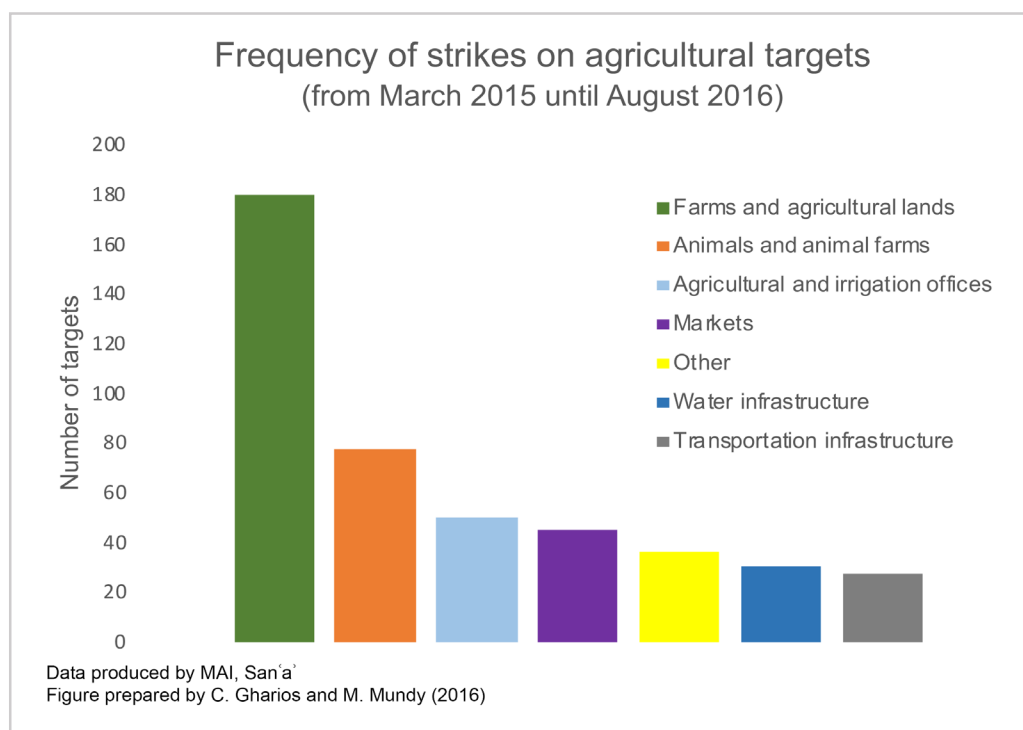


Map 7. Agricultural targets. MAI data September – October 2015 and bar graph of all targets



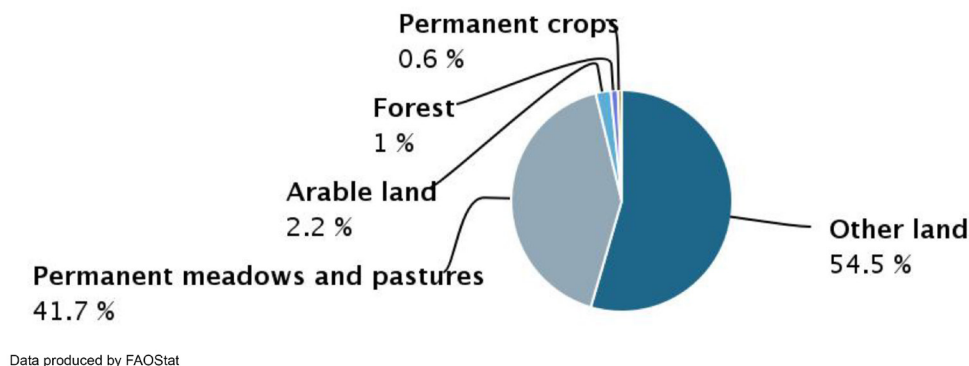
According to the reports submitted by the agricultural extension workers, what did the Coalition target?

Figure 3. Type of agricultural targets. MAI data March 2015 – August 2016



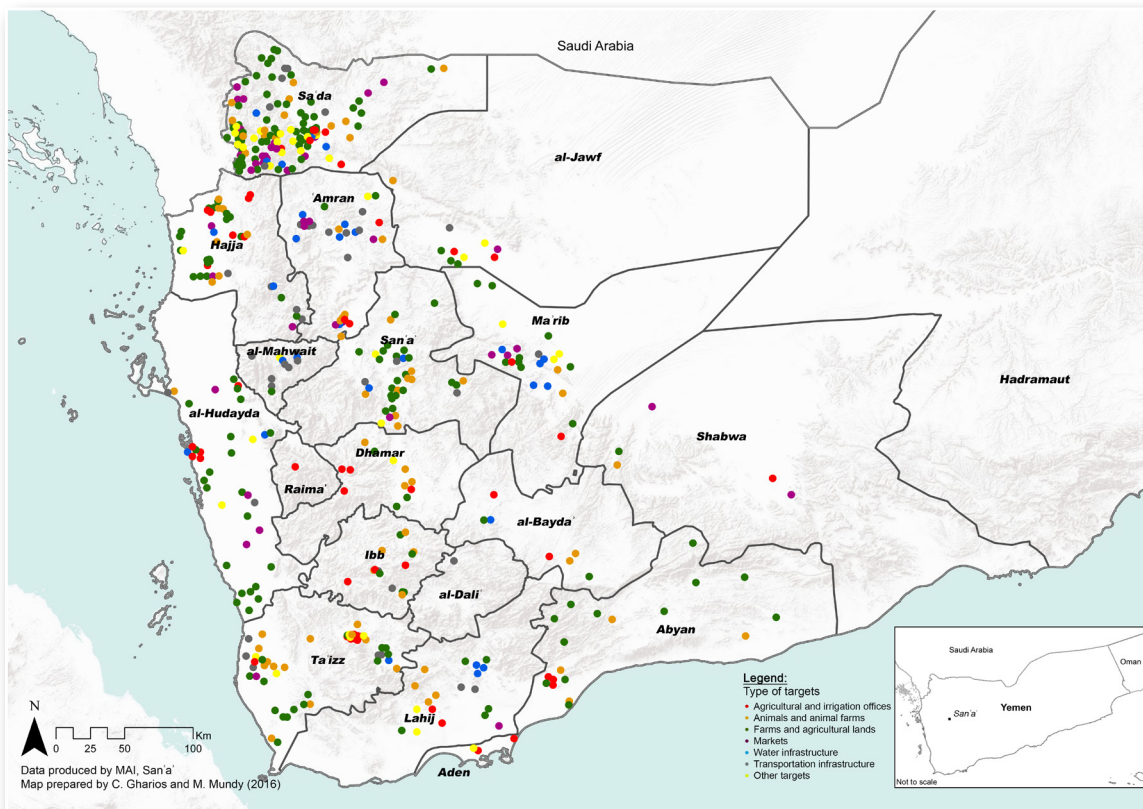
Agricultural land was the target most frequently hit but alongside all the other components of rural life. According to earlier FAOStat estimates, agriculture covered less than 3% of Yemen's total land surface, forests 1%, and pastures just under 42% (see Figure 4 below). More recent FAOStat estimates start not from total land area but from 'agricultural areas' which break down into 5% arable land, 1% permanent crops and 94% permanent meadows and pastures.³⁹ In short, to target agriculture in Yemen requires a certain precision in aiming.

Figure 4. Land-use in Yemen. FAOStat data August 2016



Placing the total targets on a map of Yemen produces this image.

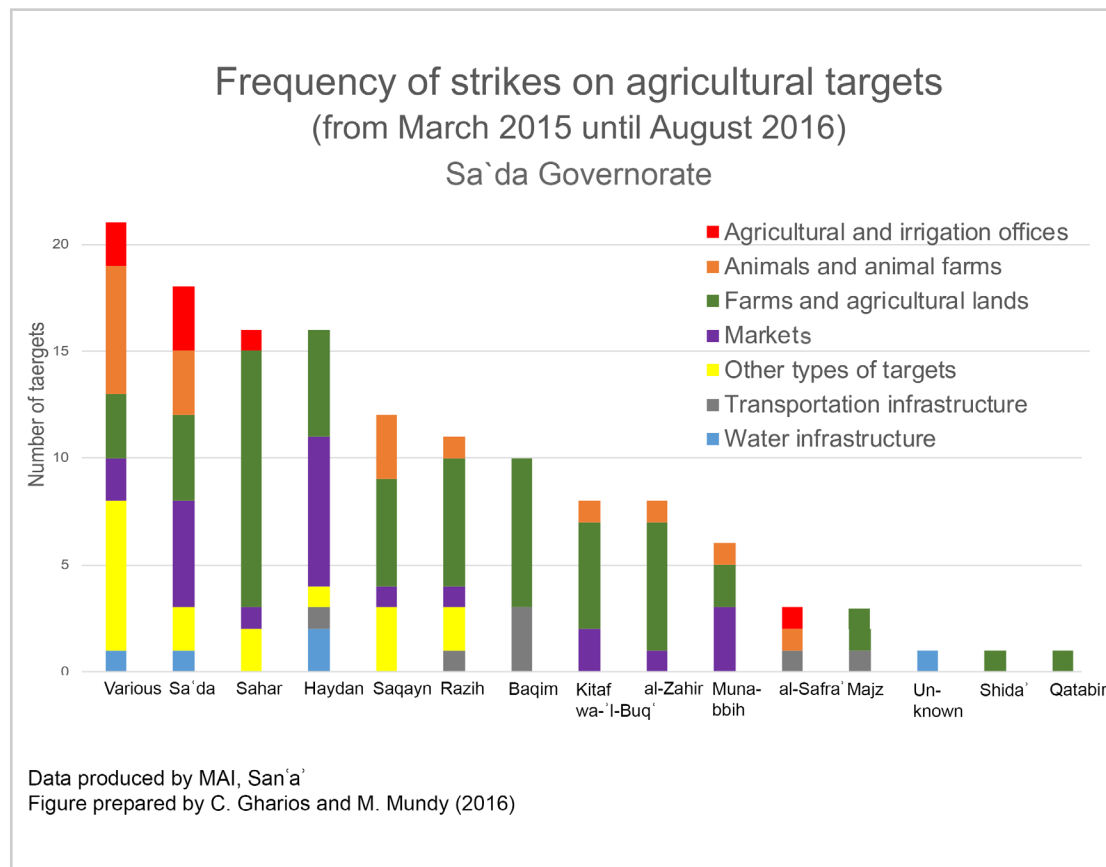
Map 8. All agricultural targets. MAI data March 2015 – August 2016



As is evident from the above, Sa'da governorate was particularly heavily targeted, the Saudi military spokesman al-Asiri having declared the whole a military target six weeks into the war.⁴⁰

As shown in Figure 5, for Sa'da governorate, the MAI data reveals that the targeting of objects indispensable to the survival of rural residents has been systematic. This data, it should be noted, covers only the period through early August 2016. It nevertheless was the first structured evidence of the policy of damaging food production and distribution that became available. For that reason, we present the patterns it gives in this report.

Figure 5. Agricultural targets by district in Sa'da Governorate. MAI data March 2015-2016



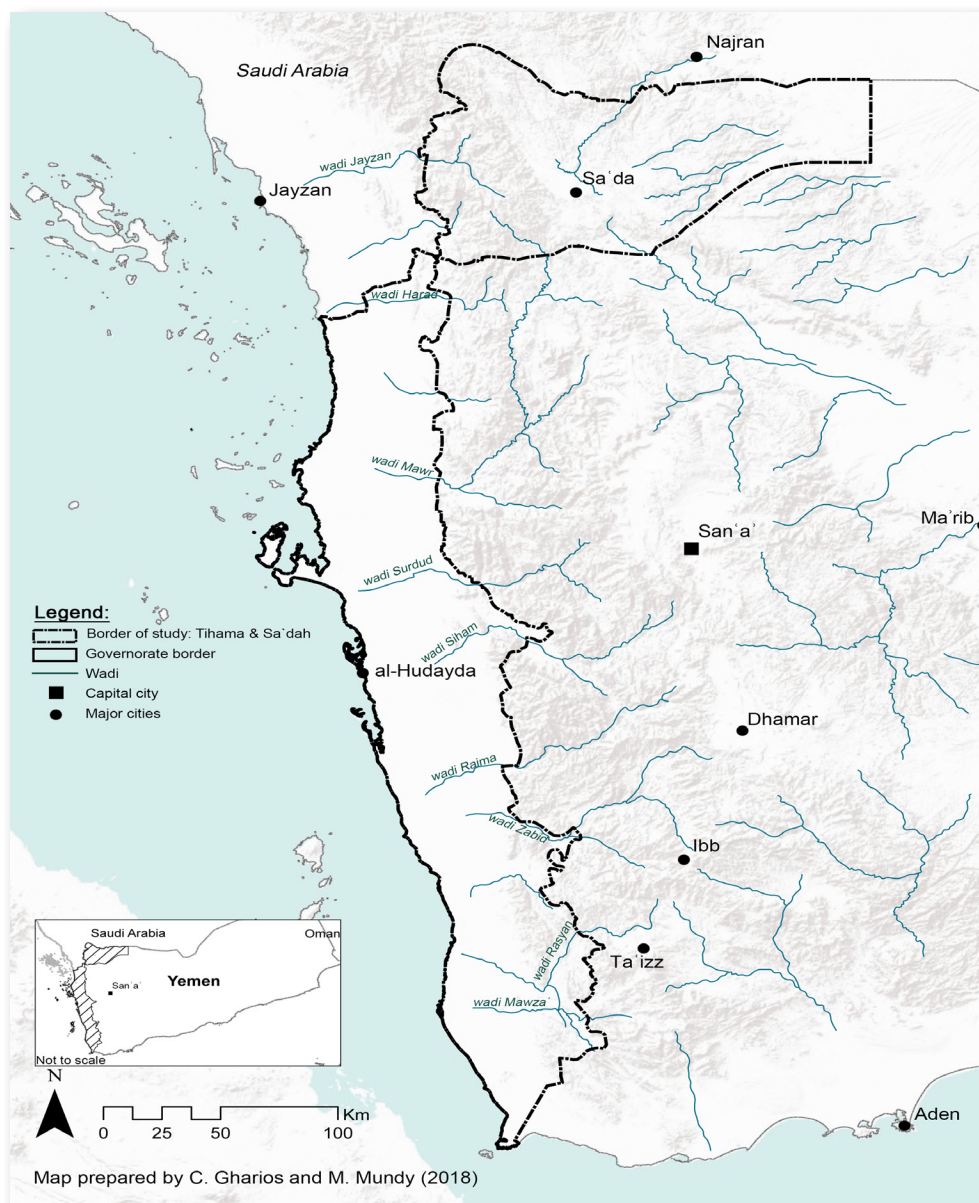
KILLING AGRICULTURE: A CASE STUDY IN TIHAMA

It is in fact not necessary to bomb fields and flocks to damage agriculture severely. As noted above, agricultural policy over the past decades valorised market-oriented over subsistence crops and transformed irrigation systems to that end. Throughout large parts of the country farmers invested in petrol-driven lift-pump equipment.⁴¹ From 2011 onwards, and ever more harshly with the war, farmers have faced shortages and price-increases in fuel, motor oil and spare parts. These conditions also caused the cost of moving produce to markets to increase sharply.

Oil-driven pumping of ground water likewise increased throughout the Tihama, especially in the downstream areas of the major wadis. However, the major form of irrigation in those wadis had historically been through diversion of spate-floods by farmer-constructed weirs and bunds.

From the late 1970s, international development agencies led by the World Bank pressed for permanent, professionally engineered water diversion structures. For this they came to collaborate with the special regional agency established in 1973, the Tihama Development Authority (TDA).⁴² The resultant engineering works both strengthened the hand of 'upstream' landowners to develop market-oriented fruit plantations (for Saudi and urban markets) and over time engendered increasing maintenance problems.⁴³ Management of the major structures remained the responsibility of the TDA. On 18 (four strikes) and 24 August 2015 and again on 25 September (eleven strikes) Coalition aeroplanes repeatedly bombed the

Map 9. Major wadis of the Tihama



central compound of the TDA on the southern outskirts of the city of al-Hudayda.⁴⁴ On 4 October 2015 irrigation structures in wadi Siham and on 6 October (three strikes) the TDA compound there were targeted.⁴⁵ The attacks upon facilities of the Tihama Development Authority do not appear random; indeed the YDP documents that such attacks continued beyond 2015 with two incidents in late 2016 and three in early 2017, including the office in wadi Zabid.⁴⁶

An exceptional study, the Assessment Report of The Flood-based Livelihood Network Foundation (FBLN), The War Impact on Food Security in the Tihama Region: Case study wadi Zabid and wadi Siham (November 2017) provides documentation of the impact of the war on farmers in the two major wadis.⁴⁷ The report draws on surveys conducted in June 2017, after more than two years of war. Chapter 3 of the report focuses on agricultural production. The section begins by describing the decline in monthly household income, a decline varying overall from 73% to 47% depending on whether the farming family receives remittances from a member working outside the farm.⁴⁸ Farmers were asked what were the factors that contributed to the fall in income. The responses of farming households were reported in Table 3.2 and are reproduced here.⁴⁹

The TDA has responsibility with regard to irrigation works and their maintenance (problems 1 and 2 mentioned by farming households), to agricultural extension and support (problem 4), and probably also to livestock production (problem 7 related to the collapse in veterinary services during the war). It is inconceivable that the US (and UK) military advisors who give target intelligence to the Coalition did not know the location/s and purpose of the Tihama Development Authority.

As a result of these problems, both areas sown and yield per area decreased radically. Overall, the area farmed decreased by just over half in both wadis. Yields were down (overall by 42% among farmers in

War impacts (Agricultural Damage)	Wadi Zabid	Wadi Siham
Water scarcity caused by destruction of water structures (dams, well, reservoirs)	5%	35%
Inefficient performance of water installations due to lack of maintenance	32%	36%
Reduction of yields as a result of increasing fuel prices for operating water pumps	50%	58%
Lack of financial and other support from state extension services	38%	37%
Increased prices of agricultural inputs caused by the economic blockade	40%	69%
Problems in marketing agricultural and craft products	22%	30%
Deterioration in livestock production	48%	75%

wadi Zabid and 46% in wadi Siham) due primarily to shortages in irrigation water, but also to lack of other inputs. Cash crops – especially fruit (mangoes, bananas) in the upstream areas, sesame, cotton and tobacco in smaller quantities, and vegetables (from lift-pump irrigation) especially in the downstream areas – have been devastated, often leading in the first to abandonment of fruit plantations. Competition inside wadi systems for sub-soil water has increased as upstream areas employ lift-pump irrigation (at relatively shallow depths) to compensate for the problems of access to surface irrigation. This has led to a drawdown in sub-soil water levels in downstream areas. And livestock production has been devastated as families in need sold animals and also found it increasingly difficult to access markets. Most households farmed a mixture of crops and have sought to maintain variety but on a dramatically reduced scale. The consequences for others – Yemen's food basket – and the farming families themselves were already devastating in 2017 before the 2018 onslaught on al-Hudayda.

As Madiha Kamal states in her briefing note on the 2017 study:⁵⁰

The Tihama region in Yemen, the onetime bread-basket of the country, is now an area where:

- 43% of people go hungry every night
- coping means: less food (89%) and of lower quality (72%); no education for children (61%); exhausting all one's savings and stocks (50%)
- land under cultivation has decreased by 51%
- crop yields per hectare have declined between 20-61%
- the production of fruits and vegetables has been wiped out as has the livestock population.

Today conditions for farmers of Tihama are surely far direr than in June 2017 when the study was done. These conditions are not a simple by-product of war; they form part of the war itself.

ARTISANAL FISHING ON THE RED SEA COAST

The other wing of food production in Tihama has always been fishing. Thanks to a report by the General Authority of Fishing in the Red Sea, under the Ministry of Fish Wealth in San'a', and to a forthcoming report based on field research by Ammar al-Fareh, it is possible to draw a more systematic picture of damage to the sector than journalists have been able to present to date.⁵¹ As al-Fareh's report is soon to appear,⁵² I shall confine my remarks to a few statistics from the report of the General Authority of Fishing in the Red Sea with maps depicting elements of the data. From a variety of sources (fishermen, government sources, and traders), al-Fareh documents the economic impact of war both on the livelihoods of fishermen and on the food basket of Yemen – a fall in fish catches and sales of at least 50%.

The report of the General Authority of Fishing in the Red Sea covers damages recorded from the beginning of the war through December 2017. It lists the names, place of origin and place of death of one hundred and forty-six (146) fishermen due

to Coalition airstrikes.⁵³ Map 10 depicts this data (green dots places of origin and red squares places of death). As the map shows, the incidents span right across the coast and islands.

The report likewise lists the damages to fishing installations, giving also the evaluated cost of the damages (not detailed here).⁵⁴ If one maps the sites listed as damaged in the report, it is evident that virtually every fish-offloading port along the coast was targeted (see Map 11).

The report gives the details (type and value of boat, place of destruction, name and address of owner) concerning two hundred and twenty (220) fishing boats destroyed.⁵⁵ On Map 12 we have combined the sites of destruction of fishing boats with the data on place of deaths and origins of fishermen.

The destruction mapped here is systematic in nature and coverage.

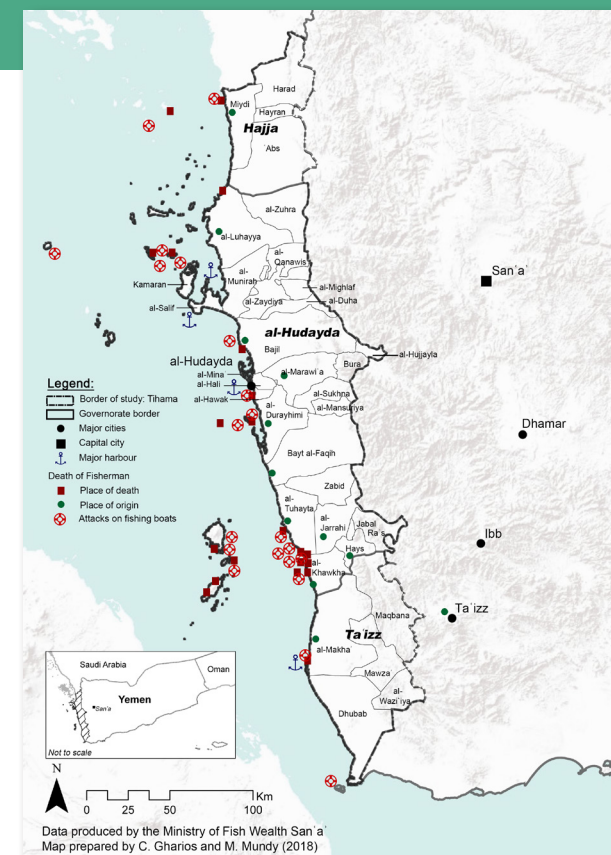
Map 10. Places of death and of origin of fishermen. MFW data March 2015 – December 2017



Map 11. Fishing infrastructure targeted. MFW data March 2015 – December 2017



Map 12. Fishermen and boats targeted. MFW data. March 2015-December 2017



Conclusion

If one places the damage to the resources of food producers (farmers, herders, and fishers) alongside the targeting of food processing, storage and transport in urban areas and the wider economic war, there is strong evidence that Coalition strategy has aimed to destroy food production and distribution in the areas under the control of San'a'. As described above, from the autumn of 2016, economic war has compounded physical destruction to create a mass failure in basic livelihoods.

Deliberate destruction of family farming and artisanal fishing is a war crime. Yemen, Saudi Arabia, the UAE, the United Kingdom and France are signatories to the 1977 Protocol I additional to the Geneva Conventions, which gives the fullest statement in International Humanitarian Law on the protection of objects indispensable to the survival of the civilian population.⁵⁶

Article 54 of Protocol I additional to the Geneva Conventions states:

- 1. Starvation of civilians as a method of warfare is prohibited.**
- 2. It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.**

If the Coalition war in Yemen is not to mark the erasure of legal referent in war, other forces and institutions will need to call into question the blanket 'legitimacy' accorded the Coalition to date by the world's highest legal body, the UN Security Council. If UN Security Council resolution 2417 (24 May 2018),⁵⁷ condemning starvation of civilians in wartime, is to be meaningful, then it is necessary for the UNSC and its member states to halt such crimes in Yemen, to investigate them, and to call to account those responsible for perpetrating them.

(Endnotes)

- [illegible]

[%D8%B4%D8%B1%D9%82-%D8%A7%D9%84%D8%AD%D8%AF%D9%8A%D8%AF%D8%A9-%D9%83%D9%8A%D9%84%D9%88-16-%D8%B9%D8%B5%D9%8A-%D8%A9-%D8%B9%D9%84%D9%89-%D8%A7%D9%84%D8%B3%D9%82%D9%88](#) For a report in English on the incident see <https://www.channelnewsasia.com/news/world/eighteen-fishermen-killed-off-yemen-s-red-sea-coast-10734796>

10 <https://www.hrw.org/report/2018/08/24/hiding-behind-coalition/failure-credibly-investigate-and-provide-redress-unlawful>.

11 The data for the first three years of the war (March 2015 – March 2018) is from the Yemen Data Project www.yemendataproject.org. The Yemen Data Project is a day-by-day compilation from social media and local journalism of Coalition strikes across the country. See <https://www.theguardian.com/world/2016/sep/16/third-of-saudi-airstrikes-on-yemen-have-hit-civilian-sites-data-shows> where the YDP is described as being compiled by a group of ‘academics, human rights organisers and activists’. Their statement of purpose was available on the website: “The Yemen Data Project is an independent data collection project aimed at collecting and disseminating data on the conduct of the war in Yemen, with the purpose of increasing transparency and promoting accountability of the actors involved. In the absence of official military records from any of the parties to the conflict, the Yemen Data Project was founded in 2016 with the overall goal of contributing independent and neutral data to increase transparency over the conduct of the war and to inform humanitarian response, human rights advocacy, media coverage and policy discussion.”

12 Three governorates with much lower total strikes, ‘Amran, Ibb and Dhamar, show even higher proportions of civilian targets. It is noteworthy that the proportions of ‘unknown’ are much lower there, whereas it stands to reason that many of the high proportion of targets listed as ‘unknown’ (which in the YDP data means targets of known location and date but unidentified objective) in Sa‘da in particular are also civilian in nature.

13 The drawing of administrative borders is inevitably both a function of geography and of political design: in the case of Yemen the proposal to redraw administrative boundaries into 6 regions (depriving the region of Sa‘dah/Hajjah from access to the sea) with increased political decentralisation was one of the triggers of the conflict.

14 <https://interactive.aljazeera.com/aje/2018/Saudi-Arabia-air-raids-on-Yemen/index.html> See below for the Yemen Data Project.

15 See the images at <https://www.nytimes.com/2015/04/21/world/middleeast/sana-yemen-explosion.html>

16 See <http://www.atlanticcouncil.org/blogs/menasource/the-unfolding-un-failure-in-the-yemen-war>

17 See time-line in this article: <https://www.reuters.com/article/us-un-yemen-factbox/u-n-sponsored-peace-talks-for-yemen-idUSKCN1J31M9>

18 At present, the oil-producing zones of Yemen are out of the control of the ‘Salvation Government’ in San‘a’. It is rather strange to elevate such structural decentralisation into a model for other regions of Yemen which would not enjoy such financial assets, see https://www.ecfr.eu/publications/summary/the_marib_paradox_how_one_province_succeeds_in_the_midst_of_yemens_war

19 The effects of this by November of that year are described by Ben Hubbard and colleagues: https://www.nytimes.com/2016/11/14/world/middleeast/yemen-saudi-bombing-houthis-hunger.html?_r=0

20 Prior to the closure, Saudi Arabia had required all flights to and from San‘a’ to land in southern Saudi Arabia where all passengers, bags and cargo were searched.

- 21 For the situation in mid-September 2018 see <https://www.savethechildren.net/article/yemen-military-action-near-hodeidah-city-threatens-food-supplies-millions-children> and <https://www.bbc.com/news/world-middle-east-45568669>.
- 22 See <https://www.newyorker.com/news/news-desk/is-yemen-intentional-starvation-the-future-of-war>
- 23 Most recently with regard to the attack on al-Hudaydah: <https://www.wsj.com/articles/u-s-deepens-role-in-yemen-fight-offers-gulf-allies-airstrike-target-assistance-1528830371>.
- 24 By contrast, see <https://www.nytimes.com/2018/06/14/opinion/yemen-al-hudaydah-famine-houthis.html> and <https://www.newyorker.com/news/news-desk/is-yemen-intentional-starvation-the-future-of-war>
- 25 See <https://theintercept.com/2017/12/13/yemen-war-peace-talks-matthew-tueller/>
- 26 On the US position <https://www.al-monitor.com/pulse/originals/2018/06/us-yellow-light-attack-yemen-port-uae-saudi-arabia-hodeidah.html>. The UK merely states that it stands by its allies: <https://www.bbc.co.uk/news/av/uk-45265871/foreign-secretary-defends-uk-saudi-ties-after-yemen-bus-deaths>
- 27 <http://web.archive.org/web/20150701113930/http://www.jokeburinga.com/divide-and-rule-saudi-arabia-oil-and-yemen-3/>. The predictions appear to be being realised: <https://www.middleeastmonitor.com/20180903-saudi-arabia-prepares-to-extend-oil-pipeline-through-yemen-to-arabian-sea/>
- 28 The citation is exact, just the speaker cannot be identified as the remark was made off the record. Compare the global pardon granted to the Saudi military <https://www.thenational.ae/world/gcc/saudi-arabia-s-king-pardons-soldiers-fighting-in-yemen-1.749094> and other remarks leaked: <https://www.middleeastmonitor.com/20180827-bin-salman-threatens-to-target-women-and-children-in-yemen-despite-international-criticism/>.
- 29 World Food Programme (WFP), "The State of Food Security and Nutrition in Yemen: Comprehensive Food Security Survey," 2012, 18. See also Figures 1 and 2 of the International Food Policy Research Institute (IFPRI) and Ministry of Planning and International Cooperation, Yemen, "Yemen National Food Security Strategy: 1 Overview and Action Plan," 2011. This is a policy paper for estimates of food insecurity in 2009, showing large areas of the country with 40 percent severe food insecurity and 60 percent or more stunting in children, pp. 2-3. See also A. J. Clements, "Yemen: Fragile Lives in Hungry Times," Oxfam Briefing Paper No. 152, September 2011 and World Food Programme (WFP), The State of Food Security and Nutrition in Yemen: Comprehensive Food Security Survey, 2012.
- 30 For this longer transformation, see: M. Mundy, A. al-Hakimi, F. Pelat, 'Neither security nor sovereignty: the political economy of food in Yemen', in Z. Babar and S. Mirgani (eds.) Food Security in the Arab World, London, Hurst and New York, Oxford University Press, 2014, pp. 137-159; and M. Mundy and F. Pelat, "The political economy of agriculture and agricultural policy in Yemen' in N. Brehony & S. AlSarhan (eds.), Rebuilding Yemen: Political, Economic and Social Challenges, Berlin, Gerlach Press, 2015, pp. 98-122. Both are available in Arabic at <http://www.athimar.org/Article-73> and <http://www.athimar.org/Article-74>.
- 31 For a global analysis see U. Patnaik and S. Moyo, The Agrarian Question in the Neo-liberal Era: Primitive accumulation and the peasantry, Cape Town, Pambazuka Press, 2011.
- 32 FAOStat gives the figure 65% of the population: <http://www.fao.org/faostat/en/?#country/249>. In the early 1970s some 85% of the population lived in rural areas.
- 33 This is what van der Ploeg terms coproduction of farming and nature in landscape: see J. D. van der Ploeg, Peasants and the Art of Farming: A Chaanovian Manifesto, Halifax, Fernwood, 2013, 48-49.
- 34 <http://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/>

[wcms_501929.pdf](#).

35 See sources cited in note 30.

36 I posed the question to the regional representative of FAO during a meeting in Beirut late September 2016.

37 There are specialised units for the compilation of such data. The Global Facility for Disaster Reduction and Recovery in the WB declared its work inside Yemen closed. The major agencies (UN/WB/EU/IsIBD, the last 40% Saudi owned) formed a partnership for Yemen for the purposes of a Damage Needs Assessment. In late April 2016 its officials were asked why in a country such as Yemen their work focused on four cities, they answered that in a month's time the second stage would begin to cover rural areas and justified the urban focus in terms of cost efficiency. (See <http://journal.georgetown.edu/assessing-structural-damage-in-yemen-five-minutes-with-andrea-zanon-and-philip-petermann-2/>) On May 6 2016, a briefing was given on the preliminary report by this partnership, but the whole was not released publicly. Aerial photo analysis of urban bomb damage for the cities of Sa'da, San'a' and Ta'izz and maps of visible light at night (to see extent of blackouts) were published by UNITAR/UNOSAT in April – May 2015. At the outset Coalition planners had stated that the war would be a short one.

38 The MAI data is of targets and not a damage assessment per se; the MAI did produce damage assessment reports which are available on the website of Ministry: <http://agricultureyemen.com/page.php?id=488>. Material on which maps here draw are available in Arabic and English on <https://yemenspring2015.wordpress.com/2016/02/>. A report of March 2017 contains many photographs of damage to the sector: <https://drive.google.com/file/d/0BxtsfVUCMuLgVU9ZVEdpUFpack0/view>.

39 <http://www.fao.org/faostat/en/?#country/249> ; see also <http://www.fao.org/countryprofiles/maps/map/en/?iso3=YEM&mapID=609>.

40 <http://www.aljazeera.com/news/2015/05/yemenis-ordered-leave-saada-province-150508145754277.html>.

41 The resultant falls in water tables and long-term unsustainability of this expansion have been a major concern in recent years. There was virtually no government legal regulation let alone physical restriction of pumping for decades before 2015.

42 See an early agreement between the IBRD and the YAR government on behalf of the TDA, <http://documents.worldbank.org/curated/en/237371468328825300/pdf/Credit-0880-Yemen-Third-Tihama-Development-Project-Project-Agreement.pdf>.

43 For a discussion of the issues at stake in spate-flood irrigation and the problems posed by such expensive imported technology diversion structures, see <http://www.fao.org/docrep/012/i1680e/i1680e.pdf> and also the references given in f.n. 29.

44 YDP strikes 2843, 2951, 3855. The first corresponds to the MAI lists al-Hudayda 8 of 18/08/15. This notes: several attacks on the building of the TDA and the service units, accommodation, research centres, regional agricultural training units as well as the destruction of storage units, destruction of 16 buildings and damage to 61 structures); the third corresponds to MAI al-Hudaydah 14 of 04/10/15

45 YDP strikes 4123, 4170 (TDA in Wadi Siham on 06.10.15). MAI 19 of 06/10/15 notes several attacks on the camp of the Wadi Siham project destroying 6 buildings.

46 YDP strikes 9894 of 14 November 2016, 10479 of 29 December 2016, 11012 of 23 January 2017, 11417 Zabid (four strikes) of 12 February 2017 and 12095 of 24 March 2017.

47 The Water and Environment Centre of San'a' University, FBLN, NICHE-Yem027, and MetaMeta Research col-

laborated on the research. Two briefing notes are available on the internet: on farming <http://spate-irrigation.org/wp-content/uploads/2018/02/Briefing-Note-2-%E2%80%93-Food-Security-Copy.pdf> and on food security <http://spate-irrigation.org/wp-content/uploads/2018/02/Briefing-Note-1-%E2%80%93-Food-Security.pdf>.

48 Ibid, p. 34. The range was even greater when broken down by wadi system (Zabid or Siham) and zone (upstream, middle, downstream), from 80% to 41%.

49 For ease of reading, I have rounded the percentages as given in Table 3.2 p. 38 of the report.

50 <http://spate-irrigation.org/yemens-burnt-granary/#more-6422>

51 For a photo-journalist report, see <http://news.trust.org/slideshow/?id=e9672555-6f07-4f41-b510-ddb618548d4b>. The report from which statistics are drawn here is Taqrir ‘an al-qita‘ al-samaki fi-’l-bahr al-ahmar ba’d alf yaum min al-‘udwan, al-Hai’ah al-‘Ammah li-’l-Masa’id al-Samakiya fi-’l-Bahr al-Ahmar, January 2018.

52 Ammar Mohammed Al-Fareh, The Impact of the March 2015 On-going War on the Artisanal Fishing Sector in Yemen: A case study of the Red Sea Coastal Areas, San’a’, September 2018.

53 Taqrir ‘an al-qita‘ al-samaki fi-’l-bahr al-ahmar ba’d alf yaum min al-‘udwan [Report on the fishing sector in the Red Sea after a thousand days of the aggression], al-Hai’ah al-‘Ammah li-’l-Masa’id al-Samakiya fi-’l-Bahr al-Ahmar, January 2018, pages 13-18.

54 Ibid, pages 19-20.

55 Ibid, pages 21-43.

56 The USA and Israel are not signatories to the Protocol.

57 <https://www.un.org/press/en/2018/sc13354.doc.htm>.

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