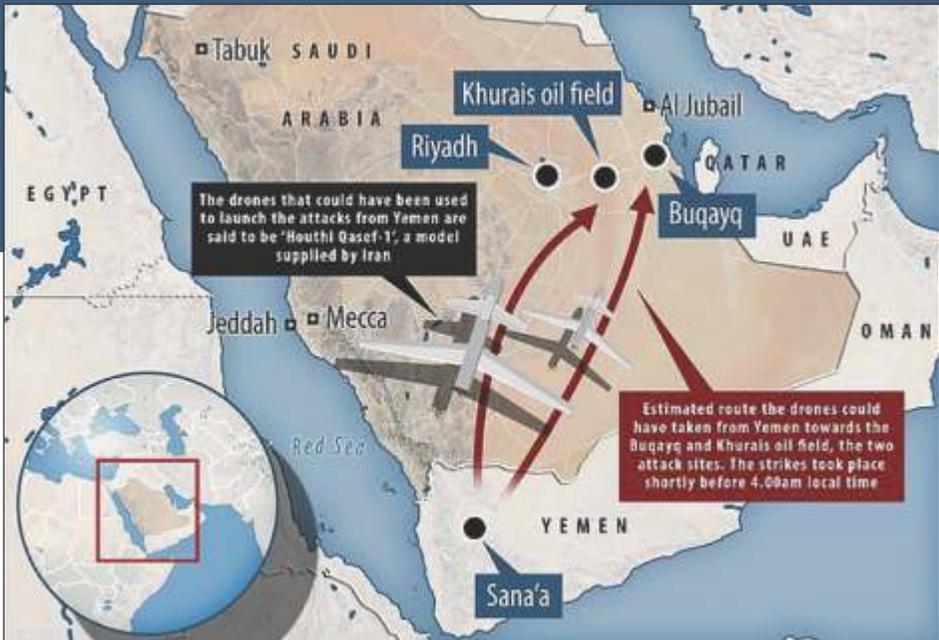


Return of the Hashishin (Assassin) Cult?

Wider Implications of the Attack on Saudi Oil Facilities



Maj Gen P K Mallick, VSM (Retd.)



Vivekananda International
Foundation

Return of the *Hashishin* (Assassin) Cult?: Wider Implications of the Attack on Saudi Oil Facilities

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Chapter 1

Preliminaries

Introduction

Considered to be the most serious kinetic attack on oil facilities in the Gulf since the first Gulf War of 1991, on September 14, 2019 the oil facilities in Saudi Arabia was attacked. The attack struck Abqaiq's large Aramco oil processing facility considered the largest of its kind in the world run by the Saudi state oil company Aramco and another site at the Khurais oil field. With remarkable precision, the aerial strikes hit more than a dozen oil installations in Khurais and Abqaiq. The



billowing black plumes of smoke from Abqaiq, which is near the Persian Gulf coast, in eastern Saudi Arabia, could be seen from space for hours. Khurais, which is farther southwest, is the Saudi Arabia's second largest oil field. Khurais is the closest of the targets to the Yemen border - still a considerable 770km (480 miles) away.

Yemen's Iranian backed Houthi rebels claimed that ten drones carried out the attack saying it was in response to the Saudi-led war in Yemen that has killed tens of thousands of people. The attacks knocked out 5.7 million barrels of daily oil production for Saudi Arabia, about 50 percent of Saudi production capacity or more than 5 percent of the world's daily crude production. Experts are of the opinion that it will take months to repair the facilities and return to full production. The oil price has seen the biggest one day rise since the 1991 Gulf War, rising 20 percent but falling back later. The international benchmark used by traders, Brent crude, jumped to \$71.95 (£57.53) a barrel at one point. Prices eased after President Trump authorised a possible release of U.S. reserves. And the Brent went down 5.3 percent to \$65.34. Energy Secretary Rick Perry told business channel CNBC that it was too early to tell if release of U.S. reserves would be necessary. However, there were concerns that higher prices could continue if tensions worsen further.

The attack on Saudi oil installations has large scale ramifications in world's strategic political, economic and military issues. The attack shows that drones are able to penetrate deep into the airspace of a key U.S. ally in a dense air defence environment. Similar attacks will be an increasing concern in the future. Most Gulf countries have condemned the September 14 attack. It is important to analysis the background of the latest attack, its effect on gulf countries and the countries which are

largely dependent on import of oil and most importantly the new kind of warfare waged by Iran.

Background

Since President Franklin D. Roosevelt's encounter with Saudi King Abdulaziz early in 1945, the U.S. has pursued policies to ensure that oil exports from the Middle East are unimpeded. Oil is the reason why the U.S. is in the Middle East. Because of oil U.S. maintains good relations with some of the Generals, Kings and Presidents who abuse their own people, make a mockery of values American hold dear and demand that the U.S. provide them with security. At the G-7 summit in Biarritz, France, in August, U.S. President Donald Trump referred to Egypt's leader, Abdel Fattah al-Sisi, as his "favourite dictator." Egypt and the Suez Canal are important parts of a U.S.-led regional order that helps the U.S. pursue its interests of the free flow of energy resources.¹

Iran has been viewed as a threat by the U.S. since the 1979 revolution. Four years back, U.S. and Iran signed a historic multilateral agreement that curtailed Iran's nuclear enrichment program in exchange for U.S. sanctions relief. On 8 May last year U.S. President Donald Trump withdrew from the Iran nuclear criticizing the Joint Comprehensive Plan of Action (JCPOA) for its limited scope and scale. His enmity has hurt Iran's citizens – but not the regime. Old geopolitical fault lines were aggravated and inflamed. Iran showed its prowess in drone warfare when in March 2019, displayed a massive drone drill which involved flying more than fifty drones simultaneously, including Iranian versions of the U.S. RQ-170 Sentinel stealth drone and the American MQ-1 Predator. Iran is integrating drones in its regional military operations. Iran doesn't need to manufacture complicated or advanced drones to

pose a threat to its adversaries. Much cheaper and less capable drones suit Iran's asymmetric military strategy adequately.

The Trump administration is using sanctions to strangle the Iranian economy. U.S. deployed an aircraft carrier, a missile defense battery, and four bombers to the Middle East. U.S. has evacuated nonessential personnel from its embassy in Baghdad. The U.S. also stated that Iran almost certainly perpetrated the recent damage to oil tankers flagged by Saudi Arabia, Norway, and the United Arab Emirates (UAE) and claimed that Iran had temporarily loaded missiles onto small boats in the Persian Gulf. U.S. is pursuing a "maximum pressure" campaign against Iran with a suffocating economic sanctions and oil and gas embargo. Iran is following a maximum resistance strategy, escalating into attacks on shipping lanes, downing a U.S. drone over the Persian Gulf and rejecting all opportunities for de-escalatory talks with Washington. With both states unwilling to back down, the tension is bound to rise.

The attack on Saudi oil installations was coming. This is the third attack since the May 14 strike near Al-Duadmi, which was also initially thought to be a drone flown from Houthi-held areas in Yemen. U.S. Secretary of State Pompeo had flown to Iraq earlier that month to warn about potential Iranian attacks. There was indication that the May 14 attack could have come from Iraq, launched by Iranian-allied paramilitaries. A few months later, there was a second strike at Shaybah oil field, near the border shared by the United Arab Emirates (UAE) in eastern Saudi Arabia. It was also attributed to the Houthi rebels. These attacks were part of an expansive air war that Houthi rebels have carried out in southern Saudi Arabia, including targeting facilities at Abha and Jizan. The frequency of the short-range attacks was increasing. The

Houthi drones are a part of Iran's growing arsenal of weaponry and linked to Iranian technology. They are a part of Iran's overall success in precision ballistic missiles and cruise missiles technology. This is evident in attacks against dissidents in Iraq, against ISIS in Syria and against Israel.

The attack on Saudi oil installations has large scale implications for the hydrocarbon supply to the world specially for countries like China, India and the Asian giants of Japan and South Korea. The Strait of Hormuz becomes critical for energy imports of these countries.

The Strait of Hormuz is regarded as the world's most strategically important passage for international trade. The 39 km strait is the only route to the open ocean for over one-sixth of global oil production and one-third of the world's Liquefied Natural Gas (LNG). Some 21 million barrels of crude and refined oil pass through the strait every day. Most of the oil that passes through the strait come from Saudi Arabia. 76 percent of oil flowing through this chokepoint goes to Asian countries where China, Japan, South Korea and India are the biggest consumers. Two-thirds of the oil and half the Liquefied Natural Gas (LNG) India imports come from the strait between Iran and Oman. In any case the happenings are too close to India's west coast for comfort.²

In the Strait of Hormuz in the Persian Gulf on July this year, an Iranian drone approached the U.S. Navy ship USS Boxer. The drone ignored multiple calls to stand down and came close to around 1,000 yards from the American ship, prompting the Marines on board to shoot it down. Iran denied that one of its drones had been shot down. The incident highlighted the increasing role of drones in Iran's asymmetric operations. There have been number of serious incidents in the region

involving Iranian drones. There was a threat of a regional war last year when Iran flew a weaponized copy of the U.S. RQ-170 Sentinel Unmanned Aerial Vehicle (UAV) from Syria into Israel. The Israeli Air Force shot down the drone and carried out air strikes against a number of Iranian targets in Syria before a Syrian anti-aircraft battery downed an Israeli F-16. This, in turn, triggered a wider Israeli retaliation against Syrian air defense systems and Iran's entire attack drone weapons system in that country.

The situation is not as bad as it appears. Nobody wants a war. Iran's military strategy is to keep tensions at a low level and avoid a direct confrontation with the U.S. Though U.S. struck a tough public posture its recent troop deployments are not unusual. However, even if neither side wants to fight a war it could still happen due to miscalculation and missed signals. Even a minor clash can lead to a regional conflagration with devastating effects for Iran, the U.S. and the Middle East.

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Chapter 2

Immediate Reaction of Countries

Houthi Rebels in Yemen

The Zaydi Shiite Houthi rebels in Yemen, whom Iran supports in the war against the Saudi backed government, claimed to have carried out the attack with drones. The attack may have been retaliation for a Saudi air strike on a Houthi prisoner of war camp which killed dozens of people two weeks before the attack on Saudi oil field. Houthi rebels claimed that it sent a flock of 10 “drones” to carry out the strike which had targeted Abqaiq, as well as the Khurais oilfield. Houthi spokesman Mohammed al-bukhaiti said, “We confirm that the Yemeni forces are the ones who hit the oil fields, and everyone knows our credibility, in every attack we announce. We don’t need to provide evidence.” Later, a spokesman for the Houthi military, Brig. Gen. Yahya Sare’e, “warned companies and foreigners not to be present in the factories that were hit by our strikes because we may target them again at any moment. We assure the Saudi regime that our long hand can reach wherever we want, and whenever we want.”

Very importantly, they said that the attacks were facilitated by Saudis in the kingdom, most likely Saudi Shiites in the oil-rich Eastern Province. Analysts take that to mean elements of the restive Shia population in Saudi Arabia’s Eastern Province. Abqaiq lies between the predominantly

Shia area of Qatif and Ahsa, which has a substantial minority Shia population. But they caution that it's in the Houthis' interests to try to stir internal tensions and it seems farfetched that local people could have assisted such an attack.

But attacks of this scale, accuracy and sophistication would represent a sudden and remarkable increase in Houthi capabilities. Neither the U.S. nor Saudi Arabia is buying the claim. U.N. Yemen envoy Martin Griffiths told the U.N. Security Council it was "not entirely clear" who was behind the strike but he said it had increased the chances of a regional conflict.

Saudi Arabia

Saudi Arabia has been guarded in its response to the attack. It has stopped short of naming Iran for this incidence. Saudi Arabia said the attacks were carried out with Iranian weapons, adding that it was capable of responding forcefully and urging U.N. experts to help investigate the raid. Crown Prince Mohammed bin Salman did not directly accuse Iran. Col. Turki bin Saleh al Malki, a Saudi spokesman limited his first set of comments to saying that "investigations are ongoing to determine the parties responsible for planning and executing these terrorist attacks." A day later, however, Col. Malki stated that the attack did not come from Yemen and that, "investigations were underway to determine the launch location." This seemed to imply that Saudi Arabia believed that Iran was the source but was not yet ready to make a formal statement. It seems that Saudi Arabia is not ready to respond militarily or embroil itself in a larger conflict with the Islamic republic.

Saudi King Salman said that Riyadh was capable of dealing with the consequences of attacks on its installations. A statement issued after

a meeting of Saudi Arabia's council of ministers said the cabinet had reviewed the damage caused by the attacks on Aramco installations. It called on the international community "to shoulder its responsibility in condemning the perpetrators" and "clearly confronting" those behind the attack. Saudi oil minister Khalid Al Falih lamented, "I am concerned though about the security of oil supplies from threats from state and non-state actors that we've seen. We've seen ships being attacked, we've seen pipelines being attacked, we've seen drones being launched from militias that are agents of Iran and that's putting the global energy supply at risk." Iran has denied the charges.

The scale of the attacks means that Saudi Arabia cannot overlook what happened. The Saudis will probably wait until a team of independent experts from the United Nations has completed an investigation into the incident. Although the experts are likely to come to the same conclusions - namely, that the attacks could not have been carried out without Iranian material support and guidance, the process will give the Saudis time to consider their options.

Iran

Iranian President Hassan Rouhani told reporters during a visit to Ankara that the strikes were carried out by "Yemeni people" retaliating for attacks by a Saudi-led military coalition in a war with the Houthi movement. Yemeni people are exercising their legitimate right of defense. In Iran, Rouhani told his Cabinet that Saudi Arabia should see the weekend attack as a warning to end its war in Yemen, where it has fought the Houthi rebels since 2015 and sought to restore the internationally recognized government. Rouhani said Yemenis "did not hit hospitals, they did not hit schools or the Sanaa bazaar," referring

to the Saudi-led coalition's air strikes. He said the Houthis were responsible for the attack on the oil installations: "They attacked an industrial center to warn you. Learn the lesson from the warning."

U.S. Secretary of State Mike Pompeo blamed Iran without providing any evidence, prompting Iran to accuse Washington of deceit. Iranian Foreign Minister Javad Zarif accused Pompeo of engaging in deception. He wrote on Twitter: "Having failed at 'max pressure', @SecPompeo's turning to 'max deceit'. U.S. & its clients are stuck in Yemen because of illusion that weapon superiority will lead to military victory. Blaming Iran won't end disaster." Iran's foreign minister Javad Zarif was happy about the failure of Saudi Air Defence System. He tweeted on 17 September 2019, "Perhaps the U.S. is embarrassed that hundreds of billions of dollars of its arms didn't intercept Yemeni fire." Iran reiterated its stance that if the U.S. returns to the nuclear deal, Iran would consider negotiations. Iran also took formal diplomatic steps in order to dissuade the U.S. from striking Iran.

On September 16, 2019, Iran issued "a sober warning" to the U.S. through the Swiss embassy. Any U.S. "retaliation" against Iran "will be met with an immediate response". The message further warned that "if any attack is launched against Iran, the Islamic Republic's reaction will be rapid and crushing and will likely target more extensive areas than the source of the act of aggression". Ali Shamkhani, the Secretary of Iran's Supreme National Security Council on September 18, 2019, warned of "a crushing and powerful response" to any retaliatory aggression. He noted that "Iran monitors, with full preparedness, any intention and move for the purpose of aggression against the country or the interests of the Islamic Republic and will give a decisive and all out response to possible mischiefs in the harshest way which can surprise the aggressors".

On September 19, 2019, Maj Gen Salami raised the ante. He said, “We do not fear our enemies large and small and have overcome such worries and the enemy is well aware of this. Today, we have become so powerful that they are forced to connect any incident with us through making false claims.” Rear Adm. Habibollah Sayyari, Deputy Coordinator of the Iranian Armed Forces, reiterated that the U.S. and its allies do not dare face Iran because they are aware of its power. “The enemy is still present but doesn’t dare face a powerful country; our Armed Forces enjoy full readiness. The enemy knows that the Iranian nation backs the Armed Forces and that people and Leader are united. Today, they are busy designing different conspiracies with different approaches, but they have always failed. Today, the Islamic Iran is a regional power. We are a great missile power and despite all pressures and sanctions, we could manufacture aircraft”.¹

Iran’s supreme leader Ayatollah Ali Khamenei has announced there will be “no negotiations on any level” with U.S. officials. The remarks doused speculation of a possible summit between Donald Trump and Hassan Rouhani on the sidelines of the UN general assembly. Khamenei said the U.S. wants to prove its “maximum pressure policy” against Iran is successful. In return, we have to prove that the policy is not worth a penny for the Iranian nation. “That’s why all Iranian officials, from the president and the foreign minister to all others have announced that we do not negotiate (with the U.S.) either bilaterally or multilaterally,” he said. A former Iranian vice-president Mohammad-Ali Abtahi said, “While Iran denies any role, what happened is a very big deterrent. The proxy forces reminded everyone that . . . no one should think of a war and not even use the rhetoric of war. This attack showed Saudi Arabia is the most vulnerable point in the region, which will change many regional calculations for the Saudis.”

Russia

The Russian foreign ministry made the following statement on Saudi Aramco attacks, “We insistently recommend that no hasty conclusions be drawn as to who has launched this attack on the Saudi refineries. We believe that it would be counter-productive to use these developments for inciting passions around Iran in the context of the well-known U.S. line. And we consider various military retaliation options, now being allegedly discussed in Washington, to be even more unacceptable. We are of the opinion that mutual strikes against civilian facilities and the resulting violations of international humanitarian law are a direct consequence of the persisting acute military-political crisis in the Republic of Yemen. We reaffirm our principled position on the need for ending the armed confrontation as soon as possible and launching an all-inclusive negotiating process that would involve all leading public and political forces, regional communities and religious denominations in Yemen under the auspices of the UN. We are convinced that the people of Yemen, neighbouring countries, as well as other states having serious interests in this strategically important region, would benefit from this.”

Sensing a commercial opening, Russian President Vladimir Putin said on Sept. 16, “If Saudi Arabia wants to protect itself it should make a wise decision and follow Iran and Turkey, who bought Russian air-defense systems. Russia’s S-300 and S-400 are capable of defending any kind of infrastructure in Saudi Arabia from any kind of attack.”²

China

Although China’s foreign ministry condemned the attack, spokesperson Hua Chunying advised the parties, “We call on the parties concerned

to refrain from taking actions that lead to escalation of regional tensions.” She also refrained from attributing responsibility for the strikes to a specific actor saying, “it’s irresponsible to think about who is responsible” before a conclusive investigation is complete. China is against any expansion and intensification of conflicts.” Li Guofu, a former Chinese diplomat to the U.S. and director of the Center for Middle East Studies at the China Institute of International Studies which falls under the foreign ministry said, “Although strategists in Beijing believe the unfolding drama shows Trump’s efforts in the Middle East have failed, China still wants to avoid rising geopolitical tensions in the Middle East and will attempt to mediate or promote talks.”

European Union (EU)

German Chancellor Angela Merkel and British Prime Minister Boris Johnson pushed for an international response to the attacks. However, they also emphasized the “importance of avoiding the further escalation of tensions in the region.” According to the Washington Post and Reuters, British Foreign Secretary Dominic Raab said, “In terms of who is responsible, the picture is not entirely clear... I want to have a very clear picture, which we will be having shortly.” German Foreign Minister Heiko Maas said that Germany was working with its partners to determine who was responsible.

President Emanuel Macron of France said that he hoped that the meeting of the United Nations General Assembly will be an opportunity for de-escalation of tension between the U.S. and Iran. French President Emmanuel Macron, British Prime Minister Boris Johnson and German Chancellor Angela Merkel called for Iran “to accept negotiation on a long-term framework for its nuclear programme as well as on issues

related to regional security, including its missiles programme and other means of delivery.” Johnson went further, saying U.S. President Donald Trump should strike a new deal with Iran.³

Britain’s ambassador, Karen Pierce said in the UN Security Council, “We are still assessing what happened and who is responsible for these attacks. Once this has been established, we will discuss with our allies and partners how to proceed in a responsible manner. We need a united international response to these despicable attacks.”

Japan

Prime Minister Shinzo Abe has been under tremendous pressure from U.S. Secretary of State Mike Pompeo to join naval patrols in the Strait of Hormuz. According to a poll published by Kyodo News, around 57 percent of the public were against any Japanese deployment to Hormuz compared to just 28 percent in favour. Abe’s previous attempts to broker a resolution to the Iran like his visit to Iran in June to ease tensions went nowhere. Kazuo Takahashi, an emeritus professor at the Open University of Japan said, “Japan will probably try to stay on the sidelines until things clear up. I think Abe will try to play a role in smoothing things over, but whether he can really do much, I don’t know.”⁴

Iraq

The Iraqi Government issued a statement rejecting reports “about its land being used to attack Saudi oil facilities.” U.S. intelligence officials believe that the attacks had originated in southern Iraq by pro-Iran armed militias. Iraq denied that the attacks were launched from its territory. Prime Minister Adel Abdul Mahdi said Mr Pompeo had assured him in a phone call that the U.S. backed Iraq’s position.

U.S.

Predictably, U.S. response was totally unpredictable and confusing. Different parts of U.S. Government were taking different views, President Donald Trump taking the lead. The President's first reaction was fast and furious. He tweeted as follows:-



Trump administration officials said that the attacks might have involved a combination of drones and cruise missiles and that they did not originate from Yemen. Secretary of State Mike Pompeo took a harder line. He told, "The Saudis were the nation that was attacked. It was on their soil. It was an act of war against them directly. it doesn't matter whether the Houthis claim they were behind the attack. This was an Iranian attack." The U.S. State Department had no comment on the warning.

Mr. Trump, however, did not name Iran, saying he needed to consult with Saudi Arabia first. But later said, “That was an attack on Saudi Arabia, and that wasn’t an attack on us. But we would certainly help them... We have a lot of options but I’m not looking at options right now. We want to find definitively who did this. Do I want war? I don’t want war with anybody.” Asked whether he had pledged to protect Saudi Arabia, the president told reporters, “No, I haven’t promised the Saudis that ... We have to sit down with the Saudis and work something out.” Later, Trump told reporters, “The fact is the Saudis are going to have a lot of involvement in this, if we decide to do something. They’ll be very much involved, and that includes payment. And they understand that fully.” Trump, meanwhile, tweeted, “I have just instructed the Secretary of the Treasury to substantially increase Sanctions on the country of Iran!” The U.S. Treasury Department announced sanctions against Iran’s Central Bank on Sept. 20. Although the sanctions limit the connections between Iran’s Central Bank and the global financial system, the new measures would not have any major effect on the country’s economy due to the extensive sanctions already in place against Iran.

Pentagon officials said they would defer to Saudi Arabia’s assessment before explicitly blaming Iran for the weekend attack on Saudi oil facilities, a departure in messaging after the State Department laid blame for the attack squarely on Iran. Defense Department spokesman Jonathan Hoffman told reporters at the Pentagon, “We’re not going to get ahead of the Saudi investigation in their assessment of this. We’re supporting their investigation, we have teams on the ground working with them, but we’re not going to get ahead of their conclusions.” Hoffman declined to say whether the U.S. military believes the drone and missile attack was launched from Iranian territory.

Secretary of Defence Mark Esper tweeted, “The U.S. military, with our interagency team, is working with our partners to address this unprecedented attack and defend the international rules-based order that is being undermined by Iran.” Mark Esper said, “We’re calling on many other countries to do two things. Stand up and condemn these attacks and also contribute defensive capabilities so we can defend... the infrastructure in Saudi Arabia and the broader issues with regard to freedom of the seas and navigation of the Strait [of Hormuz], and the international rules and norms that Iran is clearly violating.”⁵ The Secretary of Defense and Chairman of the Joint Chiefs of Staff General Joe Dunford at a press conference said that Saudi Arabia had requested U.S. assistance following the September 14 attack. President Trump approved a “moderate” deployment of troops to the Middle East to help Saudi Arabia defend itself against Iran. The deployment will be “defensive in nature” and primarily concentrated on air and missile defense— including one Patriot battery, four Sentinel radars and 200 support personnel. On Sept. 18, 2019, the U.S. Air Force also sent a pair of fully-armed F-15E Strike Eagles, together with a C-130H Hercules carrying support personnel and equipment, from Al Dhafra Air Base in the United Arab Emirates to Prince Sultan Air Base in Saudi Arabia, where American forces are expanding their presence.

In the UN General Assembly (UNGA) President Trump in speech did not use the phrase “act of war.” He implied but did not say directly the Iranians were behind. He didn’t offer any evidence for it. He didn’t ask for the United Nations to gather a meeting of the Security Council that would authorize some kind of military or even non-military action. The president called for continued tightening of sanctions and said he is still ready to talk. Trump tweeted that reports he had been willing to

meet with Hassan Rouhani, the Iranian president, before the attacks were false. “The Fake News is saying that I am willing to meet with Iran, ‘No Conditions.’ That is an incorrect statement (as usual!),” But political commentators were quick to point out that those comments came from Pompeo and Treasury Secretary Steve Mnuchin, who five days ago said on camera that Trump was willing to meet with Rouhani with “no preconditions” at the upcoming United Nations General Assembly in New York.⁶

From the above it is evident that all the government agencies are not on the same page. There is lack of coordination which is damaging.

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Chapter 3

Effect on Economy and Oil Market

Global Price Rise

According to Bloomberg, September 14, 2019 attack against major oil infrastructure in Saudi Arabia is the largest single disruption to crude oil supplies in history. Global oil markets responded with an initial price increase and subsequent pullback. The magnitude and duration of the price rise would depend on factors like how long the outage lasts, how quickly Aramco can bring the damaged units back online or boost production from other units to make up the difference, the potential confirmation of the perpetrator and related security responses and whether the attack leads to any armed retaliation and further escalation.

Crude oil markets have responded to the attacks. The price of the U.S. benchmark crude, West Texas Intermediate (WTI), on Friday before the attacks was \$54.85 per barrel, while the international benchmark, known as Brent, was \$60.22. At the market's close on September 16, WTI was priced at \$62.62 and Brent was \$68.75, a 14 percent increase for both. After a Saudi press conference that included Minister of Energy, Prince Abdul Aziz Bin Salman, prices started to retreat from September 16 highs. WTI was down 6 percent at the opening of trading September 18, while Brent declined 6.5 percent. The 15 percent jump,

the largest one-day increase in about a decade, is a big one in relative terms. But oil prices remain well below where they were five years ago. In the summer of 2014, oil prices went above \$100 a barrel; maximum oil price on Monday hit about \$66 a barrel.¹

The disruption is currently being offset by sales of oil from Saudi storage facilities. Increases in production from unused Saudi oil fields and from spare capacity from other countries such as the United Arab Emirates will provide offsets in the longer run.

Immediate U.S. Response

In response to the attack against Saudi Arabia's oil production facilities President Trump on September 15 itself authorized the release of oil from the U.S. Strategic Petroleum Reserve (SPR). The amount of the release was not announced, but was to be based on the necessary volumes to keep the market supplied and to mitigate the impact on oil prices. The SPR alone has the capacity to replace most of the Saudi oil deficit. However, on September 17 as oil markets calmed, President Trump stated that a release from the SPR may no longer be needed.²

Stabilization of the Situation

The attacks managed to cripple two facilities at the heart of Saudi Arabia's oil infrastructure -Abqaiq, the world's largest crude processing facility and Khurais, Saudi Arabia's second largest oilfield. The Abqaiq facility is the largest oil processing facility in the world, with a capacity of about 13 million barrel per day (mb/d), but has been operating below its capacity. Abqaiq is a key processing facility for light and extra light Saudi oil that tend to be high in sulfur. To stabilize the crude, hydrogen sulfide and other contaminants need to be removed. Amrita

Sen, chief oil analyst at Energy Aspects Ltd said, “Damage to the Abqaiq facility is more severe than previously thought. While we still believe up to 50 percent of the 5.7 million barrels a day of output that has been disrupted could return fairly swiftly, full resumption could be weeks or even months away.” Five out of 18 stabilization towers appear to have been taken out and the pictures that have been released show very specific, accurate targeting of those particular infrastructures. Phillip Cornell, a former senior corporate planning adviser to Aramco said, “Abqaiq’s stabilization towers, which separate gaseous compounds from crude oil, could take longest to repair. They can take weeks or months to get specialized parts.”

Photos of the attacked sites reveal a fairly sophisticated, precision-targeted operation and serious but limited damage. Individual buildings were not destroyed, as shown by images of more than a dozen spheroid structures in which crude is depressurized and explosive gases are recovered. The Abqaiq processing center removes these gases and toxic hydrogen sulfide from crude oil, making it safe for export. The limited nature of the damage helps explain why significant volumes could be quickly restored. Aramco is working overtime to restore the disrupted supply, but full repairs could take weeks or even months, according to industry experts familiar with the matter. To replace some of the lost production Saudi Aramco is firing up idle offshore oil fields which are part of its cushion of spare capacity. Aramco customers are also being supplied using stockpiles, though some buyers are being asked to accept different grades of crude oil. According to consultant Rystad Energy A/S the kingdom has enough domestic inventories to cover about 26 days of exports.

On Sept. 17, the new Saudi Oil Minister, Prince Abdul Aziz bin Salman and Amin Nasser, CEO of Saudi State oil company Aramco, held a

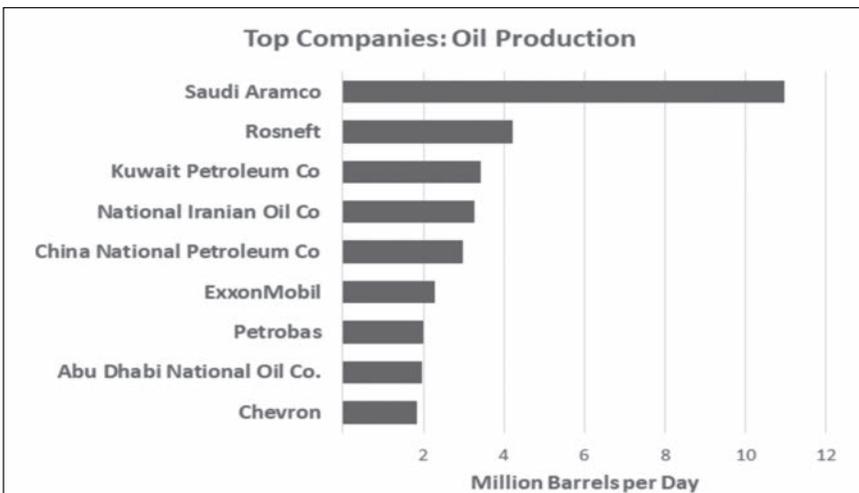
press conference in Jeddah to announce that half the lost production had already been restored and the rest would soon follow suit. The market seems to be taking Prince Abdul Aziz at his word and does not seem to be pricing in the risk of military escalation. Saudi Arabia has restored more than 75 percent of the production lost after attacks on two oil processing plants and will return to full capacity soon. It has been claimed that the Khurais facility is now producing more than 1.3 million barrels per day and the Abqaiq plant about 3 million. Aramco has told some customers that several October shipments would be delayed. The Nikkei Asian Review reported that Saudi Aramco notified Japan's biggest oil distributor – JXTG Nippon Oil & Energy – that it would be downgrading its oil exports to Tokyo from light grade to “heavy and medium” starting in October. The Aramco communique is an indication that full repairs to Abqaiq, the world's largest oil processing facility, will not be completed as promised by the end of September. No specified completion date has been announced.

For decades, the Saudis were the world's top exporter and swing producer, able to change output to meet fluctuations in market demand. An assault on their oil should have created panic and an extreme rise in prices. But almost no panic in the oil market occurred. There was no surge in prices and no sign of a stock market collapse. If the attacks had occurred 10 years ago, prices would have shot far higher and not fallen back so quickly. Today, there is enough oil around in the world for the Saudis even to buy some from their neighbor, Iraq, to maintain their exports, with little effect on prices.

Though getting back to full production may take some more time the impression that the country will desperately struggle to keep up exports and that the oil market will be angst ridden looks like an exaggeration at best.

Issue of Saudi Aramco's IPO

Saudi Aramco caught the attention of global investors in 2016 by proposing an initial public offering. The Initial Public Offering (IPO) was to be for an estimated 5 percent equity float of the company and the biggest stock market IPO in history, with an estimated valuation of \$2 trillion. It was expected to raise upwards of \$100 billion for Saudi Arabia. Officially, the IPO was postponed, not cancelled, to acquire a 70 percent stake in Saudi petrochemical company SABIC. Saudi Crown Prince Mohammed bin Salman has made the IPO of Aramco, which operates facilities and infrastructure targeted in recent months, a cornerstone of his strategy to shift the economy from oil to new sectors and technologies as part of his Vision 2030 plan. The attack casts further doubt on Saudi Aramco's planned IPO. Having previously delayed the listing over valuation concerns and other factors, the latest setback highlights the risks inherent in the kingdom's unbalanced economy. Doubts emerged about the timeline of the potentially \$20 billion domestic leg of the IPO among investors. Any fresh attack on



the oil giant could dissuade investors. Saudi state oil company Aramco has hired UBS Group (UBSG.S) and Deutsche (DBKGn.DE) as book runners for its initial public offering. It is a sign that the deal is moving ahead despite a recent attack on Saudi oil facilities.³

Saudi leaders deny reports that they may delay a planned initial public offering of shares in their state owned oil company. However, additional attacks or delays in restoration efforts, could extend negative short term effects and reduce investor confidence in the security of Aramco assets.

This attack reveals a new type of asymmetric regional threat that can cause severe damage to the Saudi oil industry. Saudi Aramco will need to demonstrate to investors how it is taking steps to improve the security of its physical infrastructure from more sophisticated attacks, including this type of airborne attack, just as it did following a cyber attack several years ago. The bigger issue is whether Saudi Arabia's image of invincibility has been shattered by the attack on the Abqaiq facility, which processes almost 70 per cent of crude output of the world's largest oil exporter.

Saudi Arabia's Reputation as a Reliable Producer and Supplier of Crude

Saudi Arabia's reputation as a reliable producer and supplier of crude is under serious doubt. The threats to production from the region are now at the highest level since the first Gulf war in 1990/1. It is difficult to predict if there will be further attacks or how Saudi Arabia or the U.S. would respond to Saturday's incident or any such future attacks. Amy Myers Jaffe, energy fellow at the Council on Foreign Relations,

said Iran appeared to be sending a clear message that it had the ability to directly target the most well protected and critical infrastructure in the Middle East.

These attacks and their aftermath question prevailing perceptions of energy security and show cracks in the twin pillars of global oil security architecture - the principle of consumer coordination in the face of disruptions through the IEA and the image of Saudi Arabia as a large, stable and reliable global oil supplier. Both pillars are showing signs of stress. The Saudi oil facilities are far more exposed than what was believed and the security of the world's top source of oil imports cannot be taken for granted. War in the Gulf would carry huge risks for Saudi Arabia's oil infrastructure and for the world economy, as there is no spare capacity anywhere that can replace Saudi oil and strategic reserves are not a viable substitute.⁴

Role of U.S. in Global Oil Market

To understand why there has not been an upheaval in oil market after the attack on Saudi oil installations, one has to look at how dramatically the global oil market has shifted in the past decade, particularly the role of the U.S.

Trump tweeted on September 16 morning, "Because we have done so well with Energy over the last few years, we are a net Energy Exporter & now the Number One Energy Producer in the World. We don't need Middle Eastern Oil & Gas, and in fact have very few tankers there." A decade ago, the U.S. imported 60 percent of its oil. In just six years, America's production of crude oil surpassed that of both Russia and Saudi Arabia, increasing from 5.5 million to 12.2 million barrels

per day. It is now expected to reach over 13 million barrels per day in 2020. Adding to this other petroleum liquids, especially those derived from natural gas, the total rises to 18 million barrels per day, a level no country has ever before achieved. Widespread use of the drilling technique known as fracking in the U.S. in the late 2000s resulted in a production boom. Traditionally the U.S., the former Soviet Union and Russia, and Saudi Arabia have for decades been the top three oil producing countries in the world.

There has also been the lifting of a 40-year ban on oil exports, a policy U.S. Congress reversed in 2015. As a result, exports went from near zero to over 3 million barrels per day by mid-2019, surpassing most countries in the OPEC group. A particularly striking number here is that America's need for imports of crude oil have fallen from 60 percent to a mere 8 percent in a single decade. The historical anxiety in the U.S. about "foreign oil" and over dependence on OPEC has also been erased. It has added a degree of background stability; supply

What countries are the top producers and consumers of oil?

The 10 largest oil¹ producers and share of total world oil production² in 2018³

Country	Million barrels per day	Share of world total
United States	17.87	18%
Saudi Arabia	12.42	12%
Russia	11.40	11%
Canada	5.27	5%
China	4.82	5%
Iraq	4.62	5%
Iran	4.47	4%
United Arab Emirates	3.79	4%
Brazil	3.43	3%
Kuwait	2.87	3%
Total top 10	70.96	70%
World total	100.66	

(Source: <https://www.eia.gov/tools/faqs/faq.php?id=709&t=6>)

is no longer controlled by autocratic regimes. The world has gained a massive new source of supply, while dropping a longtime source of imports. The overall effect has been to keep the market better supplied than in the past. Another effect has been to eliminate worries about the world running out of oil.

U.S. consumers are not immune to the oil price impact of the attack on Saudi oil installations. Though the U.S. may be oil independent it still imports a vast amount of oil even as it exports oil and petroleum products. The U.S. imports nearly one million barrels per day from Saudi Arabia. The oil market is global. Oil is priced in a global market and prices in the U.S. go with the world price. U.S. refineries will pay more for crude, regardless of where it originates. And when they pass this price hike on to their customers, Americans have to pay more at the pump. Rising gasoline prices could immediately undermine support for Trump's reelection. Persistently elevated oil prices could push the country into recession, further harming his prospects.

This attack on Saudi oil installations shows how important the region still is to global oil markets. The U.S., now the world's largest oil producer, but still imports significant quantities of oil. Saudi Arabia is still the indispensable country in oil markets, owing to its large exports and ability to use spare capacity to move prices. The events of Sept. 14 provide a clear indicator to the U.S. that no matter how much domestic production increases, it cannot ignore the impact of the Middle East on energy supplies.

Effect on World Economy

Due to U.S. - China trade war presently the global economy is suffering from a sharp slowdown. Oil is regarded as a key barometer

of growth because it greases the wheels of the world economy and is vital to most economic activity. Oil represents about one-third of all energy used globally. It is the dominant fuel for transportation, used almost exclusively for aviation and for most of the world's automobiles. Growing tensions in the Middle East would be another headwind for the global economy. The International Energy Agency has been slashing its short term oil demand outlook for several months and had warned OPEC on a looming supply glut when the attack took place. Signs of economic slowdown, sluggish end user oil demand and supply abundance have helped the market better absorb the news of the attacks. Though the threat to the world's oil supplies is considered real, to the trading world it is not yet a full-blown crisis. The strikes occurred in a relatively bearish market environment. The initial price increases would probably have been steeper and would have stuck for longer, if oil demand growth had been more robust or shale production had not been so high.

At present, there is plentiful oil on the market. OPEC and its producing ally Russia have cut production this year to support prices. It is a testimony of the state of the current oil market that in spite of one of the largest disruptions ever, oil prices are only 5 percent higher. Some of the reasons are: Demand has been very weak; the Organization of Petroleum Exporting Countries plus (OPEC+) has been cutting supply; Iranian supply is held offline; collapse in Venezuelan production, and U.S. shale growth. The market seems confident that there is still enough supply to meet current levels of demand.

China is the largest importer of Saudi crude oil, at 1.5 mb/d, followed by Japan at 1 mb/d. Japan relied on Saudi Arabia for almost 40 percent of its oil in 2018. These countries may have incentive to purchase U.S.

crude, especially U.S. shale supplies, which tend to be similar to Saudi crude that has been removed from the market. According to the U.S. Energy Information Administration (EIA), Saudi Arabia is the second-largest source of U.S. crude oil imports behind Canada, providing 11 percent of gross U.S. crude imports.⁵

OPEC and Russia

OPEC, whose 14 member nations together pump just under one third of the world's oil, are already seeking to curb supplies and lift prices. The cartel in July signed a new charter of cooperation with major allies including Russia as they agreed to prolong daily production cuts. The weekend drone attacks could boost producers with spare capacity. Rise in oil price will benefit countries with spare capacity and non-OPEC countries like Russia.

Is U.S. the Biggest Winner?

The U.S. is likely to reap the benefits due to its status as the world's biggest oil producer on booming shale oil. JBC Energy analysts say, "This means that the U.S. shale industry will directly benefit ... and it will be interesting to see how quickly additional barrels can be brought onto the market from the U.S. However, this question is — at least for the next couple of months -- less one of actual production, but much more one of logistics."

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Chapter 4

The Attack: Who, From Where, and With What Weapon Systems

Proxy War

Saudi Arabia and Iran have been engaged in a deadly proxy war for a number of years. As per available data between July 2016 and July 2019 there had been 250 attacks against Saudi critical infrastructure. The vast majority of the attacks were mostly conducted by the Houthis. The attack on key Saudi Arabian oil facilities on September 14 marks an escalation in the drone wars that have been going on for the past few months. This is the third round of long-range drone or cruise-missile attacks that have struck Saudi Arabia since the May 14 strike near Al-Duadmi, which was also initially thought to be a drone flown from Houthi-held areas in Yemen. In June this year a missile fired out of Yemen struck the Abha Airport terminal in southern Saudi Arabia.

These previous attacks showed the vast vulnerabilities of the Saudi Arab's massive energy operations and critical infrastructure. However, these did not cause emergency because the damages involved were relatively easy to ameliorate. The questions that arise are: Who conducted the attacks?; from where the attacks came from?; What were the projectiles that were used; and were these cruise missiles? There are various theories. The jury is still not out.

Iran / Houthi Claim

According to Iranian and Houthi sources, the raiding force comprised of 12 drones/cruise missiles, all from the Qasef family, which were launched from the Sanaa area in Yemen. At least 20 drones which were launched “from nearby”, most likely Iran-held island(s) and/or barges. These provided intelligence coverage, last minute reconnaissance, jamming, decoys and diversion (including strikes on secondary objectives). According to the Iranian and Houthi sources, 10 of the Qasef 3 drone/cruise missiles hit their targets. A few Saeghe stealth drones launched Sadid-345 glide bombs to hit additional six to eight targets. Satellite damage assessment confirmed this statement.¹

On September 19, 2019, Houthi Brig Gen Yahya Saree provided a detailed description of the strike. Salient points of his briefing were:-

- Three types of strike drones/cruise missiles were used for the attack:-



- ✓ The Qasef 3 combat drones.
 - ✓ The long-endurance Sammad-3 drones (both with operational range of 1,500-1,700 kms).
 - ✓ “Newly-developed drones equipped with jet engines”. This missile is actually a derivative of Iran’s Quds-1 cruise missile.
- The attacks by Qasef-3 drones, Sammad-3 drones and new jet-powered drones were launched from three different locations.
 - The Sammad-3 drones “carried four precision bombs per strike”.
 - Numerous “other drones” were also used to confuse the enemy so the main combat drones could hide in their shadow without being detected and signal jamming devices effectively disabled the enemy’s air missile defense systems.
 - The strike drones could reach their targets undetected and unmolested by the Saudi air defense.

Since the start of the Saudi led invasion of Yemen the Houthis’ missile and UAV capabilities have grown considerably. These capabilities allow the Houthis to carry out successful attacks on infrastructure and military targets belonging to the Saudi-led coalition and deep inside Saudi Arabia.²

The report on the enquiries initiated by UN, U.S. and Saudi Arabia are still not out. However, it is reasonable to suspect a minimum indirect

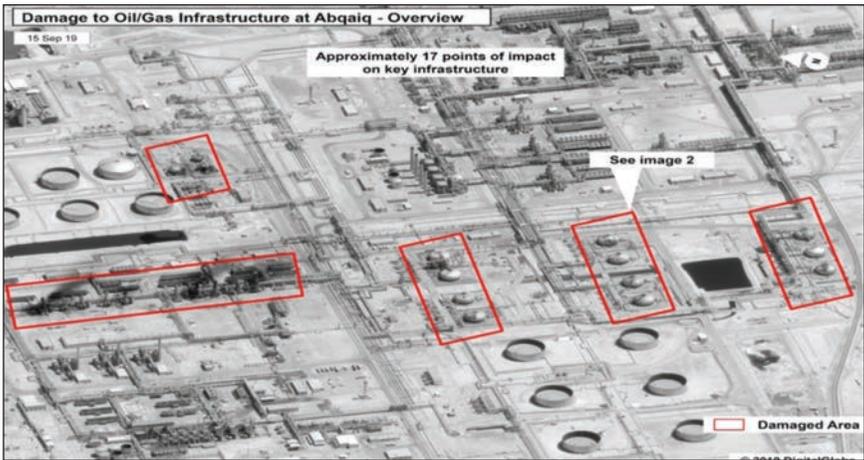
Iranian involvement. The Houthi have no advanced technology base. They have to depend on imported missiles, Remotely Piloted Vehicles (RPV), Unmanned Combat Aerial Vehicles (UACV) and cruise missiles for any attacks. It is not clear whether they have the ability to manage a complicated set of near simultaneous attacks on this complex set of targets at such long distances. The range, scale and precision of the attack, including the successful penetration of Saudi air defenses and the avoidance of obstacles like power lines and communication towers far exceeds anything the Houthis have ever done. Iran may not have technically executed the attacks, but it is extremely doubtful that the Houthi could have executed them without Iranian assistance.

Damage to Saudi Oil Installations

The attacks targeted the site of the world's largest oil processing plant at Abqaiq and the Khurais oilfield. American officials released satellite photographs showing at least 17 points of impact at two Saudi energy facilities, though not all of the weapons necessarily hit their targets. Forensic analyses of the recovered weapons could answer questions about what they were, who manufactured them and who launched them. Experts are of the opinion that the satellite images show the attackers had detailed knowledge of which tanks and machinery to hit within the sprawling Saudi oil processing facility at Abqaiq to cripple production. Joe Bermudez, an expert at the Center for Strategic and International Studies who examined the images said, "satellite imagery can't show you where the attack originated from."³

On the basis of recovered debris, the Saudis claimed that at least 18 delta-winged UAVs and seven cruise missiles as well as multiple smaller drones were launched by the Iranians. The Saudis claimed that they had

identified a total of at least 17 points of impact in Abqaiq and Khurais. Most of the drones and missiles which impacted were precision-guided munitions which had highly accurate GPS guidance. A close-up image of damaged tanks at the Abqaiq processing plant appeared to show impact points on the western side. The images show precise, deeply



Other images show damage at the Khurais oilfield, which is located further west.
Source: U.S. Government/Digital Globe, via Associated Press



penetrating hits on structures at the oil processing facility. The satellite imagery showed damage to storage tanks and a processing train.

The satellite photos do not offer enough information to determine what kind of weapons were used. But a geospatial analyst is of the view that the precision and consistency of the damage to the storage tanks was consistent with some type of guided munitions, such as a missile.

From Where the Attack Came

The attacks in Khurais and Abqaiq were long range strikes by the standards of developing countries. Khurais is the site closest to the Yemeni border and it is 770 kilometers (480 miles) from the border and more than 805 kilometers (500 miles) from a suitable Houthi-controlled launch zones in Yemen. Abqaiq is some 200 kilometers (125 miles) further on. According to Saudi sources, most or all of the drones took off from Iranian bases in Khuzestan and overflew southern Iraq and Kuwait. However, satellite pictures show that most of the key targets were hit on their west side, the most logical direction had the cruise missiles come from Yemen. The Government released satellite photographs showing at least 17 points of impact at several Saudi energy facilities from strikes they said came from the north or northwest. That would be consistent with an attack coming from the direction of the northern Persian Gulf, Iran or Iraq, rather than from Yemen.

U.S. asserts that the drones/cruise missiles have been launched from Iran as the Houthis were not known by U.S. intelligence to have the kind of weapon systems used. Because the marks were to the north, U.S. officials told the New York Times that the missiles could not have been launched from Yemen. One official said there were 19 points of

impact on the targets and the attacks had come from a west-north-west direction - not Houthi-controlled territory in Yemen, which lies to the south-west of the Saudi oil facilities. The officials said that could suggest launch sites in the northern Gulf, Iran or Iraq. An analyst wrote, "If the pictures showing the Quds 1 wreckage in Saudi Arabia are indeed connected to the recent Abqaiq attack, it would seem more likely that the attack originated from a place closer to Eastern Saudi Arabia than Northern Yemen — potentially Iraq, Iran or perhaps even from ships."

Even if the impact points indicated that the portions of the facilities that were damaged faced Iran or Iraq, that does not prove where they were launched from. Retired Lt. Col. Daniel L. Davis pointed out that the puncture marks do not actually show the origin of the attack. He said, "Missiles can fly from almost anywhere. They have the ability to maneuver! And certainly drones can, too." The satellite photographs released did not appear as clear cut as officials suggested, with some appearing to show damage on the western side of the facilities, not from the direction of Iran or Iraq.

To the north across the Persian Gulf lies Iran and Iraq. Iraq has denied that the attack came from there. Kuwait, which sits between Iraq and Saudi Arabia and is close to western Iran, separately has acknowledged investigating reports of a drone or low-flying object speeding over the oil-rich country early Saturday just before the Saudi attack. It is still not clear where these projectiles came from and how much of these were cruise missiles or drones. The Houthis may have the capability. It is not known to what degree the Iranians were directly involved, if this was a Houthi attack. There is no solid evidence that the main strike



A view of the wreckage purportedly from an Iranian cruise missile.
Source: Supplied⁴

drones/cruise missiles were launched from Iran. It is plausible the strike drones/cruise missiles were indeed launched from Yemen as claimed by Iran and the Houthis.

Weapon Systems Used

The Arms Control Wonk website which is made up of academics and analysts from a variety of international institutions, has pulled together all the available and tentative evidence and reached the conclusion that it was a cruise missile made by Iran. Officials of the Saudi state oil company at Aramco said that the attack came from missiles rather than drones. Unverified images showing pieces of an Iranian-made Quds 1 (Jerusalem 1) cruise missile in the Saudi desert began to circulate, adding weight to Aramco's story. Mark Latham, managing partner at the London-based analysis firm Commodities Intelligence, told that the puncture marks pointed to a cruise missile with no explosive warhead. Removing the payload would allow the missile to carry more fuel and launch from farther away from its target.

The immediate response among analysts was to identify the assembly of parts as an Iranian-made Soumar cruise missile. It is a design based on reverse-engineered Soviet-era KH-55 missiles illegally purchased from Ukraine in the 2000s. But others argued that it looks much more like the Quds 1, a cheaper Soumar-derived design recently unveiled by Iranian-backed Houthi rebels. The analysts pointed out, “Differences between the Quds 1 and the Soumar include the entire booster design, the wing position, the Quds 1’s fixed wings, the shape of the nose cone, the shape of the aft fuselage, the position of the stabilizers and the shape of the engine cover and exhaust.” The Quds 1 uses a ripped-off version of a Czech commercial turbojet engine. This gives it far less range than the Soumar original. Where the Soumar can cover some 1300km (roughly the distance from Southern Yemen to the Abqaiq facility), the Quds 1 can probably fly some 650km. This makes a launch site in Iraq or Southwest Iran much more likely.

No estimate has yet been given of the level of accuracy, size and nature of the high explosive warhead and nature of terminal guidance systems actually used in the attacks. It is clear, however, that UCAV/RPVs and cruise missiles with limited conventional warheads that are “smart” enough to hit a target with great precision can become “weapons of mass effectiveness” if they are directed against a critical infrastructure, commercial or military point target.

Defending against these kinds of cruise missiles and “suicide” drones is particularly challenging, since they typically fly at low altitudes. In the case of drones they fly at very low speeds. It makes detection by radar difficult and provides very little warning time. Expensive Air and missile defense system are also imperfect. The American Patriot air and missile defense system, used extensively by the Gulf states, only

provides coverage on a 120-degree arc, limiting its ability to hit a low flying drone or cruise missile.

The Houthi Arsenal

Drones

The Houthis' missile and UAV capabilities have grown significantly since the start of the Saudi-led invasion of Yemen. These capabilities allow the resistance movement to carry out successful attacks on infrastructure and military targets belonging to the Saudi-led coalition. Some security specialists say that the Houthis have greatly improved their drone and cruise missiles, with help from Iran.

The Houthi claim of launching 10 “drones” is technically credible to some degree. The Houthis are known to have acquired strike systems that have far more than the necessary range and that can fly up to 1,500 kilometers (930 miles). Presumably, these have GPS levels of accuracy and may have the capability to both fly complex flight profiles that can circumvent Saudi Air defenses. Its guidance systems can home in precisely on a given target using some form of imagery and terminal command (TERCOM) guidance. Such systems does not require satellite or complex intelligence, surveillance and reconnaissance (IS&R) systems. Flying small unarmed UAVs/RPVs can “scout” the route. A worker or visitor can use a cell phone to get precise GPS coordinates. Commercial satellite coverage is now very good and there are many ways to produce the kind of image needed for terminal guidance from ordinary photos. Houthi drones are based on Iranian models, themselves often developed from North Korean technology. They are mostly short-range, up to 186 miles (300 km).

Houthi rebels this year revealed an entirely new “suicide” drone, called the Samad-2, likely to be originated in Iran. It is estimated that it had a maximum range of between 1,200 and 1,500 kilometers while carrying a small warhead. That kind of range suggests that Samad-2s launched from as far away as Yemen could possibly have struck the oil facilities in eastern Saudi Arabia. Although the Houthis have often used drones to try to attack Saudi Arabia, they have generally relied on the Samad 3, an inexpensive, small, slow and clumsy drone that is unlikely to be able to penetrate Saudi air defenses and reach targets with the accuracy and coordination seen September 14 attack.

According to the Iranian and Houthi sources, 10 of the Qasef 3 drone/cruise missiles hit their targets. A few Saeghe stealth drones launched Sadid-345 glide bombs against additional six to eight targets. Satellite damage assessment confirmed this statement.⁵ The debris suggested that the main strike drones/cruise missiles were of either the Iranian Ababil-T or the Houthi Qasef 3 (itself derived from the Ababil-T) which have a range of about 2,000 km. Other drones involved in the strike were the armed version of the delta-shaped Iranian Saeghe or Houthi Sammad-3 stealth drones which carry miniature, precision-guided Sadid-345 glide bombs (including incendiary munitions) and have a range of more than 1,000 km. There were unconfirmed reports that the Iranians also launched from Khuzestan a few jet-propelled Soumar cruise missiles which inflicted the main damage.

The Samad-3 UAV is equipped with a conformal fuel tank. The Samad-3 is a suicide UAV designed to strike targets located behind the enemy lines. On July 26, 2018, the Houthis targeted Abu Dhabi International Airport in the UAE with a Samad-3 UAV. The airport is located more than 1,500km away from the Houthi-held areas in

western Yemen. There was no forensic evidence pointing to the use of the Soumars. U.S. intelligence agencies are convinced that the Ababil-T/Qasef 3 warheads could not have caused such heavy damage. Despite their low cost and simple manufacture, drones like these are notoriously difficult to defend against.

Cruise Missile

The Houthis recently revealed a cruise missile noticeably smaller than the Soumar and Hoveyzeh. The Quds-1 is apparently equipped with a small turbojet engine that could give it a range of several hundred kilometers. Given war-torn Yemen's limited industrial capacity, the Quds-1 is almost certainly of foreign, specifically Iranian, origin.

On July 7, Ansar Allah (also known as the Houthis) held a military exhibition displaying their new weapon systems, including the Quds-1 cruise missile, the Badr-F precision-guided tactical ballistic missile, and Samad-1, Samad-3 and Qasef-2K unmanned aerial vehicles (UAVs). The Houthis have not revealed the Quds-1 characteristics. However, it is believed that it has a range of more than 150 km. The missiles likely rely on an inertial navigation system aided by a satellite navigation system such as GPS. Some sources speculated that the missile could be equipped with some sort of terrain contour matching system. This would allow the missile to fly on low altitude and remain undetected by the enemy's radars. The Quds-1 cruise missile was used against Abha International Airport on June 12 and the al-Shuqaiq Water Desalination and Power Plant on June 19.

The exhibition also provided a closer look at the Badr-F precision-guided tactical ballistic missile. It has a bigger diameter than its

predecessors, the Badr-1 and the guided Badr-1P. The missile size is closer to that of the Soviet OTR-21 Tochka. However, its design lines are different. The Houthis claimed that the Badr-F has a range of up to 160km and armed with a heavy warhead equipped with a proximity fuze. The missile explodes 20 meters above the center of the designated target and scatters some 14,000 pieces of shrapnel in a circular area with a radius of 350 meters. Missiles of the Badr-F type have been used in several successful attacks on the Saudi-led coalition and its proxies since April. The most recent attack targeted a military camp of Saudi-backed forces in the Yemeni province of Ma'rib.⁶

Iran has one of the largest arsenals of ballistic missiles in the world, with a range up to 2,000 kilometers. However, most have limited accuracy. International sanctions and fiscal constraints have not allowed to upgrade its weak air force. Cruise missiles and “suicide” or “kamikaze” drones offer Iran alternative capabilities that could both substitute for and complement its ballistic missiles. They are both essentially unmanned aircraft designed to crash into ground targets. The primary difference is their propulsion systems. Iran has developed both these capabilities.

In 2015, Iran unveiled a cruise missile called the Soumar that it had reverse-engineered from a dozen Soviet-era Kh-55 cruise missiles it acquired from Ukraine in 2001. It suggested that Iran had succeeded in building its own cruise missile analogous to the American Tomahawk. But there was uncertainty about the missile's range. Iran claimed its new cruise missile had a range of around 700 kilometers. In February 2019, Iran revealed another cruise missile called the Hoveyzeh that looked all but identical in appearance to the Soumar. Iranian officials described the new missile as having a range of 1,350 kilometers. Iran

has also developed several drones that, while not cruise missiles in the conventional sense, provide similar capabilities. Equipped with small piston engines these Iranian “suicide” drones, such as the Raad-85 and Ababil-T, offer a very inexpensive means of delivering a small warhead to a target several hundred kilometers away.

The cruise missile technology offers a viable path to more accurate weapons as Iranian space program, have repeatedly faltered under the pressures of international sanctions. Iran’s cruise missiles and drones have the potential to strike targets with precision including perhaps specific structures at oil facilities and air bases using commercially available GPS and increasingly inexpensive navigation systems. After quietly developing its cruise missile and drone capabilities, Iran now appears to be able to strike both military and economic targets across the Gulf with much more accuracy than it can with its ballistic missiles.⁷

Endnotes

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Chapter 5

Effects on Saudi Arabia

Saudi Arabia Oil Infrastructure

After Venezuela, Saudi Arabia has the second largest proven crude oil reserves in the world. Saudi Arabia is the world's largest exporter of oil. It produces approximately 10.3 million barrels per day of crude oil and exports around 9.5 million barrels of both crude and refined oil products.

Iran and Saudi Arabia are major players for regional influence in the gulf region. Wars in countries like Syria, Iraq and Yemen, Sunni-Shia rivalry and the Arab Spring have increased the tension between the two countries. Due to Saudi Arabia's geographic position on the Red Sea, willingness to play a leadership role in regional politics and oil reserves Saudi Arabia is a strategic target for Iran. Iran prefers to target U.S. partners like Saudi Arabia than to attack the U.S. directly.

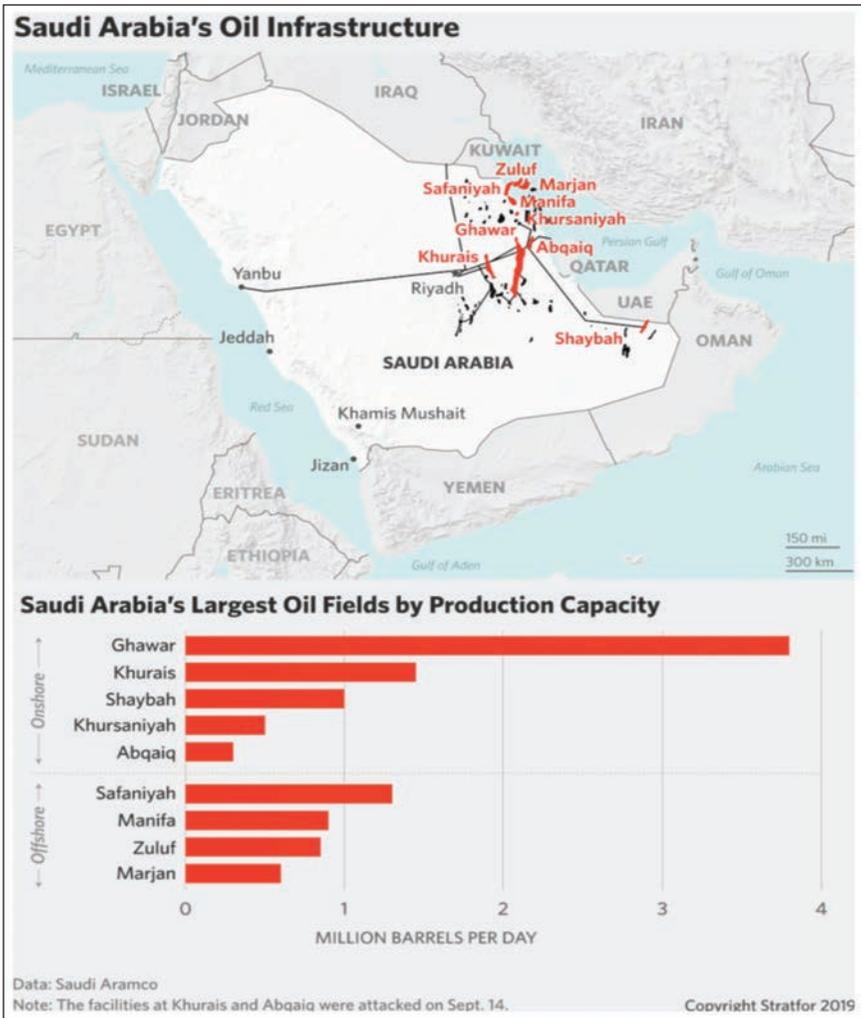
Abqaiq and Khurais are the most important of Saudi Arabia's central processing facilities. Abqaiq is home to the world's largest crude stabilization plant. The first step for most of the onshore oil and natural gas production in Saudi Arabia begins with a gas oil separation plant, which removes natural gas from unprocessed oil before sending it through a stabilization process that removes hydrogen sulfide, the

last step of the process, before the oil moves to export terminals. Before the attack, Abqaiq's 18 stabilization towers processed most of the crude produced at some of the most important Saudi oil fields, including the super giant Ghawar and Shaybah fields, which are Saudi Arabia's first and fourth largest by installed capacity.

However, all crude oil is not the same. The facilities at Khurais and Abqaiq primarily produce the Arab Extra Light and Arab Light crude grades, which are easier for refineries to handle. They are more expensive than the country's heavier Arab Medium and Arab Heavy crude. Saudi Arabia has been asking Asian buyers if they will accept the lower-quality crude at a discount given its expected shortage of lighter grades. Before the attack, Abqaiq was processing 4.9 million barrels per day (bpd) of crude oil while its processing capacity was 7 million bpd. It is now processing 2 million bpd. Before the attack, Khurais was processing about 800,000 bpd of crude oil from the Khurais oil field, which has a capacity of 1.45 million bpd, and from smaller satellite fields.

Most of Saudi Arabia's other important central processing facilities primarily process the country's offshore fields. Since they are closer to the Persian Gulf, it is easier for Iranian missiles and drones to strike these installations. The details of the processing plants are as under:-

- The Safaniya processing plant on the Persian Gulf processes oil produced at the world's largest oil field Safaniya offshore oil field with a production capacity of 1.3 million bpd.
- The Manifa plant processes oil produced offshore at Manifa oil field which has a capacity of 900,000 bpd.

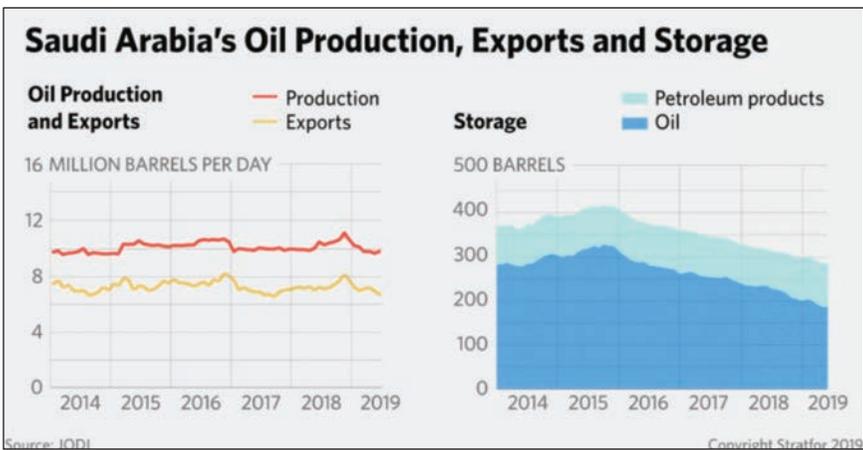


Saudi Arabia's Oil Infrastructure

- The Qatif-Abu Safa plant processes crude oil from the country's Qatif and Abu Safa oil fields, which have a production capacity of 500,000 bpd and 320,000 bpd, respectively.
- The Tanajib processing facilities process oil from the Marjan offshore oil field, which can produce 600,000 bpd.

- Other key facilities for various oil and gas processing are the Berri Gas Plant, Jubail plant, the Juaymah facility and the previously targeted facilities for the remote Shaybah oil field.

Because of the sheer volume of oil production involved Abqaiq or Khurais, are vital for Saudi Arabia's energy sector though all other facilities also play an important role.



As on the end of June Saudi Arabia held around 187.9 million barrels in storage, meaning it could maintain export levels for about 71 days, even if the full 5.7 million bpd of production remains offline. This reserve allows Saudi Arabia to make up for any global market shortages. It is not clear where that capacity is located. There were reports indicating that more than half of Saudi Arabia's spare capacity was located mainly at Ghawar and Khurais. A significant amount of this spare capacity could be stuck behind the infrastructure damaged. These would not be available to compensate for the gap in production.

The initial effects of the Saudi production shortfall may be much below than expectation. Commercial petroleum inventories sit at

2.931 billion barrels, close to the normal five-year average. Most major oil consumers can also draw on large strategic petroleum reserves. The U.S. has 645 million barrels in its reserve. The International Energy Agency could organize a global withdrawal from strategic reserves if the need arises. There is sufficient oil available to the global market to offset the drop in Saudi production for a couple of months. However, Saudi Arabia would not be able to continue to make up the difference should the damages take longer to repair.

If crude prices continue to rise there will be problem for Saudi Arabia. Countries from OPEC+ alliance like Russia, Iraq, Algeria, Angola and several other oil producers would be far less willing to maintain their cuts under the current production shaving agreement.

Aramco

Aramco is simply the world's most profitable company, its 2018 profits exceeding \$111 billion, more than double the \$53 billion of distant second-place competitor Apple. This profit is more than the profits of Google, Facebook, JP Morgan and Exxon combined. Saudi Aramco's profits are because of its low oil production costs of about \$3 per barrel, against a world average of nearly \$30 a barrel. However, high taxes supporting the Saudi economy eat into that profitability.

Saudi Aramco caught the attention of global investors in 2016 by proposing an initial public offering. As described by former Saudi Energy Minister Khalid al-Falih, the IPO would be for an estimated 5 percent equity float of the company and the biggest stock market IPO in history, with an estimated valuation of \$2 trillion and expected to raise upwards of \$100 billion for Saudi Arabia. Officially, the IPO

was postponed, not cancelled, to acquire a 70 percent stake in Saudi petrochemical company SABIC. Postponement was a relief for the many international banks and legal advisers who stood to make up \$200 million on the IPO flotation.

To put this in perspective, the all-time record profits overshadow all other Saudi companies combined.

Vulnerabilities of Saudi Arabia

The attacks on Abqaiq and Khurais have demonstrated the vulnerability of critical Saudi infrastructure to missile and drone attacks and raised complicated strategic questions for Saudi Arabia. It is vulnerable because its oil installations are concentrated in one area; conflicts are continuing in Iraq, Yemen and in Egypt's Sinai Peninsula; and wars are being fought in nearby Afghanistan, the Arab-Israeli conflict and in Syria.

Houthis in Yemen have been conducting attacks along Saudi Arabia's southwest border for years. Saudi Arabia's military operations in Yemen have created demands on its security and defense capabilities in addition to fiscal pressures. Iran's willingness and ability to directly hit Saudi Arabian oil production has forced Saudi Arabia to recognize the threat of additional attacks. The challenge for Saudi Arabia is to protect a large number of critical targets across its large territory. Unfortunately the billions of dollars it spends annually on weapons cannot protect all Saudi infrastructure from potential Iranian strikes.

Likely Targets of Saudi Arabia's Critical Infrastructure

So far, the attacks against Saudi Arabia have aimed at petroleum facilities. This is likely to remain Iran's response of choice to U.S. sanctions on

its oil exports, though it might branch out to water desalination plants and other industrial targets or even to airports. Striking Saudi Arabia's central processing facilities, export terminals and refineries would do the most damage to the country's oil production. Abqaiq and Khurais were attacked because they are critical chokepoints in the upstream petroleum sector.

Loading Terminals. Loading terminals are another type of petroleum facility that could be targeted to take a significant amount of oil production offline. Most tempting targets of Saudi Arabia's export terminals may be:-

- Ras Tanura and Ras al-Juaymah terminals in the port city of RasTanura, which can export about 3.4 million bpd and 3.1 million bpd, respectively.
- Yanbu export terminal on the Red Sea at the end of the East-West Pipeline. Saudi Arabia's most important pipeline which can send 5 million bpd of crude oil from eastern Saudi Arabia to the Red Sea for export at Yanbu and other smaller ports.



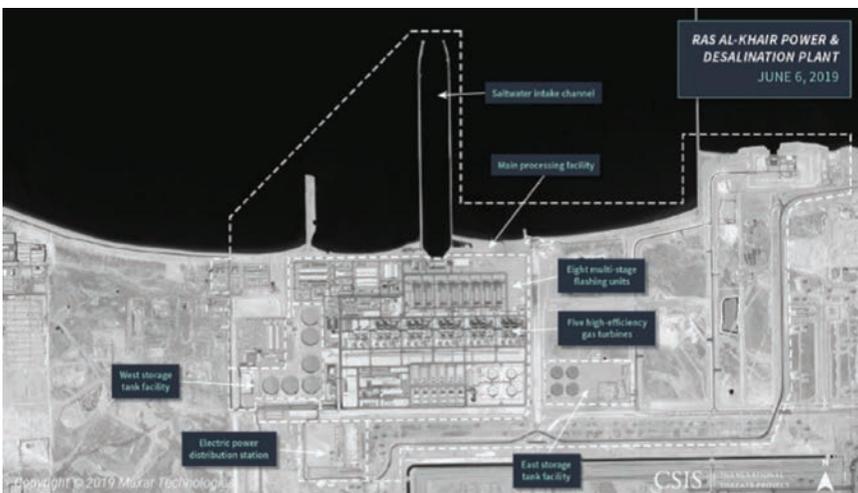
Ras Tanura Oil Refinery

Oil Refineries and Petrochemical Plants. Saudi oil refineries and petrochemical plants in the Red Sea of the Persian Gulf which can be targeted are three of the country's largest refineries:-

- Saudi Aramco-owned 550,000 bpd RasTanura refinery.
- Jointly-owned Saudi Aramco-Total 400,000 bpd refinery in Jubail.
- Jointly owned Saudi Aramco-Shell 310,000 bpd refinery in Jubail.

Main Ports. Main ports, like the King Abdulaziz Port in Dammam and the King Fahd Industrial Port in Jubail can be targeted.

Water Desalination Plants. 70 percent of Saudi Arabia's potable water comes from desalination plants. Saudi Arabia has 31 of them. These potential targets include the world's largest desalination plant at Ras al-Khair on the Red Sea, which desalinates more than 1 million cubic meters of water per day.



Desalination Plant at Ras al-Khair

Airports. Saudi airports could also be potential targets. Houthis have targeted airports in southwestern Saudi Arabia.

Electricity Grid. The SCADA systems that run the electricity grid can be hit.¹

U.S. – Saudi Arabia Relations

Before President Donald Trump was elected, he went on Twitter tirades against Saudi Arabia. He tweeted, “Have you been watching how Saudi Arabia has been taunting our VERY dumb political leaders to protect them from ISIS. Why aren’t they paying? Saudi Arabia should fight their own wars, which they won’t, or pay us. (They) have been making one billion dollars a day from oil, and if they want our help and protection, they must pay dearly! NO FREEBIES.”

There are few legal options for direct U.S. military measures against Iran as there is no formal mutual defense pact between the U.S. and Saudi Arabia. If the Trump administration takes only token steps against Iran, the Saudis can expect more attacks. The Saudis are also very worried by the talk of Trump seeking a meeting with the Iranians. This option for the time being may be shelved but may come back in future.

The new attacks are now a major humiliation for Mohammed bin Salman who has been exposed as ineffectual in defending the country against its historic rival Iran and its partner the Houthis. Despite having the third largest defense budget in the world, the kingdom cannot defeat a rag-tag militia in the Arab world’s poorest country or protect its oil infrastructure from its enemies.

Due to rise in domestic petroleum production and the decline in imports from the Gulf region, it was expected that U.S. was insulated from major disruptions in the Middle East. It would have allowed U.S. to keep a more hands-off approach. But after the attacks, U.S. crude oil price increased sharply. U.S. oil markets and economy remain vulnerable to Middle Eastern instability, regardless of whether or not it consumes energy from the region.²

Defence

According to the Stockholm International Peace Research Institute, between 2014 and 2018, Saudi Arabia was ranked as the world's No. 1 arms importer. They accounted for 22 percent of the U.S. global arms sales. The Saudis have spent tens of billions of dollars on foreign military equipment and training mostly from the U.S. In recent years they have acquired some of America's most modern weapons, including F-15 fighter aircraft, Apache attack helicopters and the Patriot air defense systems. Saudis have built an air defense force with a large number of modern air defense systems. The Patriot surface-to-air missile system is the mainstay of Saudi air defense against missiles and air targets. The Royal Saudi Air Defense Forces has about 50,000 personnel with six battalions of about 200 launchers a piece. The Saudis have steadily upgraded these systems, acquiring the more advanced Patriot PAC-3 in July 2015.

The effectiveness of the Saudi military machine has been under scrutiny for a long time. It spent \$83 billion on defense last year, compared to \$45 billion for Russia and \$20 billion for Iran. The Kingdom's well equipped air force has been bombing Iran-backed Houthi rebels in neighboring Yemen since 2015, but has so far failed to tip the civil war in favour of

Saudi allies. The formidable U.S. equipped air defence systems could not make any difference to the attack on 14 September which exposed Saudi weaknesses in its air defence system. The attacks underscored the vulnerability of the country. The Saudis were not prepared for this attack. It was remarkable in its execution and unique in its targeting. The Saudi's vulnerability is highlighted partly by military technology. F. Gregory Gause, a Saudi expert at the Texas A. & M. University said, "Cheap twenty-first century technology can literally fly under the radar of twentieth century missile air defense systems and not get picked up." Advanced U.S. Patriot air defense missiles are meant to shoot down hostile aircraft or shorter-range ballistic missiles. Patriots provide point defence. The U.S. provides intelligence and surveillance support to the Saudi military.

Saudi air defenses have significant air defense gaps, especially around critical energy infrastructure. They are insufficient to cover its geography. The Royal Saudi Air Defense Forces can be overwhelmed by sustained number of missile and drone attacks over a period of time. The Patriots are configured to strike ballistic missiles, not cruise missiles and suicide drones which were used in the Sept. 14 attacks. A month before the attack Seth Jones of the Center for Strategic and International Studies gave a presentation where he pinpointed Saudi vulnerabilities to Iranian attack and identified the possible targets which were actually attacked on 14 September. Seth Jones said in his video presentation, "Saudi Arabia is so vulnerable that defensive measures, while they are important, will not ever solve the problem."³

The U.S. military had taken some action to augment its presence in Saudi Arabia. Some of the measures were:-

- American forces returned to Prince Sultan air base south of Riyadh, Saudi Arabia, after an absence of more than a decade. Those forces include a Patriot missile battery.
- U.S. extended the deployment of roughly 600 troops from a Patriot missile battalion.
- Deployed an Air Force fighter jet squadron and a B-52 bomber strike group.
- Expedited the deployment of the USS Abraham Lincoln strike group.
- Sent additional manned and unmanned intelligence, surveillance and reconnaissance assets to the Middle East.

The U.S. Secretary of State Mike Pompeo was asked how it was possible that the Kingdom could have dropped its guard, failing to stop any of the low-flying cruise missiles or armed drones that struck the Saudi oil installations. He replied, even the best air defenses sometimes fail. Gen. Joseph Dunford, chairman of the Joint Chiefs of Staff said, “We don’t have an unblinking eye over the entire Middle East at all times.” Complicating matters for the Kingdom, Saudi air defenses like the Terminal High-Altitude Area Defense (THAAD) anti-ballistic missile defense systems are predominantly configured to strike against ballistic missiles and high altitude targets. Both the Patriot and THAAD are not ideal against low targets such as cruise missiles and some types of suicide drones, which were used in the Sept. 14 attacks. Most Saudi air defenses are currently focused on defeating air and missile threats originating from Yemen. These factors mean Saudi air defenses have significant vulnerabilities to large missile and air attacks by Iran, whether launched directly from Iran or via Iraq.

Saudi Options

Saudi Arabia cannot overlook what happened. The scale of the attacks compels the Kingdom to respond. The Saudis probably are buying time by waiting until a team of independent experts from the United Nations complete an investigation into the incident. The process will give the Saudis time to consider their options. An escalating conflict in the Persian Gulf would hit Saudi Arabia on multiple fronts. Its oil installations could get further damage, the state would lose more revenue from suspended oil sales and state oil company Saudi Aramco's reputation as a reliable oil supplier would get severe beating. Saudi Arabia has not yet given any indication about its response preference. Whether it would be an unilateral response, coordinated action with the U.S. or the adoption of a wait-and-see approach is not clear. It seems Saudi Arabia is hesitant to initiate a major and direct military conflict with Iran.

Saudi Arabia has the following options:-

- Attempt to convince the U.S. to ease sanctions on Iran as a path toward de-escalation.
- Reach out to Iran on its own accord to try to negotiate something that limits future attacks as a part of regional dialogue.
- Attack Iran indirectly by hitting one of Iran's proxies in Yemen, Syria or even Iraq, but it would require clear assurances of U.S. support.

Saudi Arabia has not yet indicated its red line to respond militarily against Iran. It can be assumed that the loss of Saudi life in a direct Iranian attack can prompt it to act directly against Iran.

Endnotes

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Chapter 6

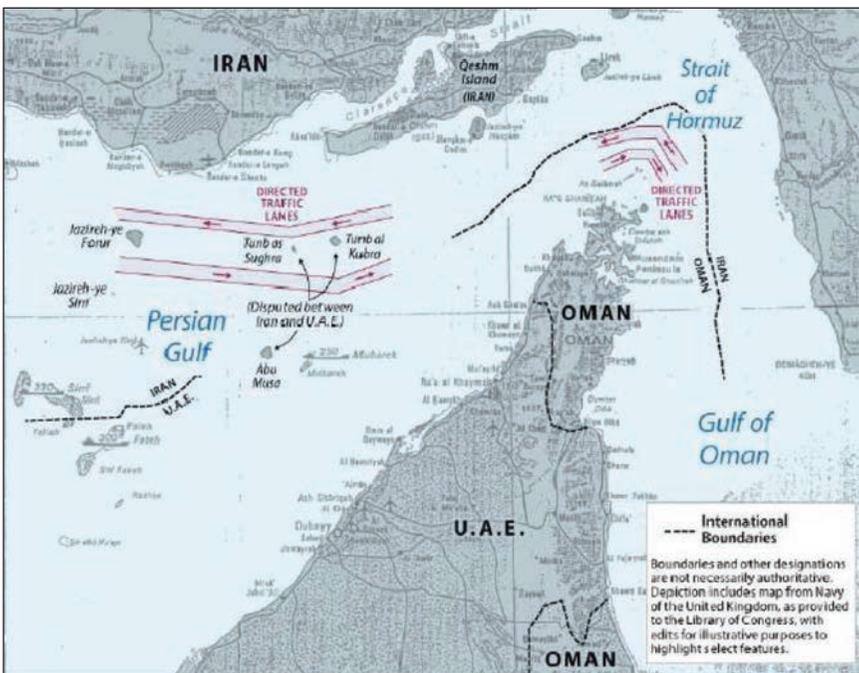
Effects on Iran's Situation

Iran in Conflict

For a long time Iran and Saudi Arabia are engaged in a proxy Shia-Sunni conflict. Presently, the two countries support different sides in the civil wars in Syria and Yemen. The struggle between Iraq and Iran goes back to the Biblical confrontation between Babylon and Persia. This is an old struggle now being played out in the context of Islamic factionalism. Iran has built a sphere of influence that stretches through Iraq, parts of Syria, Lebanon and parts of Yemen. The strategy of Iran has been to build a coalition of Shiite factions to serve as the foundation of its sphere of influence and to use those factions to shape events to its west.

The question is why Iran should instigate a direct attack against Saudi Arabia and risk conflict not only with Saudi Arabia but also with the U.S. as well? Iran has the motivation to take revenge against Saudi involvement in Yemen, a civil war that has claimed 90,000 lives, including tens of thousands of civilians, and caused widespread misery, poverty and disease. Presently Iran is under tremendous pressure squeezed by sweeping American sanctions on its oil sales. In a calculated gamble Iran has sought to inflict a similar pain on its adversaries by threatening the ability of Saudi Arabia and other American allies in the

Persian Gulf to sell oil and holding out the possibility of driving up international oil prices before President Trump seeks re-election. Ali Vaez, head of the Iran Project at the International Crisis Group said, “Iran wants to show that instead of a win-lose contest, Iran can turn this into a lose-lose dynamic for everyone. Plausible deniability is a trademark of Iran’s pushback strategy.”



Vessels transiting to the Western part of the Persian Gulf must first enter from the Gulf of Oman, and pass through the Strait of Hormuz. The shipping lanes separate inbound and outbound traffic and keep vessels in navigable waters. The inbound lane, outbound lane, and separation lane (a median strip in between) occupy a width of 4 miles, completely in Omani territorial waters and as far from Iran’s shore as safe navigation permits, but never further than 30 miles from Iran’s Qeshm Island.

Upon entering the Persian Gulf, east of the Strait of Hormuz, vessels navigate a second set of directed traffic lanes keeping vessels headed in opposite directions apart, and clear of obstacles. The inbound lane, which is to the north, at one point comes within 6 miles of the Iranian mainland. The outbound lane lies to the south of the inbound lane; the separation lane directs traffic on either side of the Tunb islands.

During the Iran-Iraq war, to avoid Iranian naval forces, ships entered the Gulf through the Strait of Hormuz shipping lane and headed along the U.A.E. coast to a point 12 miles south of Abu Musa island.

However, Iran has stopped short of carrying out direct attack on U.S. allies that might trigger a military response, preferring to let regional allies do the work or at least share the blame. If Iran, or one of its proxies in Iraq or Yemen, carried out the attacks, it would fit into a strategy Iran has followed for months in its escalating confrontation with the Trump administration. The escalation has been accompanied by ships being mysteriously attacked, mines placed on tankers, shooting down of an American drone and oil tankers seized in the Strait of Hormuz - a chokepoint for a third of the world's seaborne oil.

Shipping Lanes in the Strait of Hormuz and Persian Gulf

No policy is risk-free and the dangers of a wider regional conflict are very much there. But the Iranians are testing the entire rationale for U.S. investment in the Middle East over the last 70 years. The combination of military pressure and deniability also fits with a strategy of increasing Iran's bargaining power.¹

Problems of Iran

Iran is in serious trouble in many fronts. Since May 2018, after Trump withdrew from the JCPOA Iran's economy is on the verge of collapse. Trump's policy of maximum pressure seems to be working. Unemployment is rising, it is expected that the country's economy will retract by 6 percent by the end of the year. Before the attacks on Saudi Arabia, the cost of crude oil was hovering between \$50-\$60, its lowest in years. This is disastrous for a country where oil accounts for some 85 percent of its economy. Iran's national budget allocates 15 percent to defense and 85 percent of other programs like pensions, healthcare, subsidies, education and infrastructure. The defense budget of Saudi Arabia alone is nearly four times that of Iran.

Collapse of oil revenues, combined with the effect of sanctions, has prompted the Iranian Government to reduce or defer some outlays, as well as paying the bills by printing money. Officially, inflation has risen to 43 percent, and the cost of food and medicine has soared 40 percent to 60 percent, according to European Union figures. As a result, some Iranians are no longer able to afford fresh food and many in middle-class neighbourhoods in Tehran “have resorted to buying withered cucumbers and rotting tomatoes, grapes, apples and peaches that grocery store salesmen put aside every day at dusk,” reports the Los Angeles Times. There is considerable internal disturbance within Iran. Throughout 2017 and 2018, Iranians were agitating in dozens of cities to protest against corruption, bad governance, gender inequality, expensive foreign entanglements and the regime itself. It looked that the regime has lost its legitimacy and its ability to govern is waning.

The Iranians’ large sphere of influence is vulnerable. It has a degree of authority as the center of Shiite Islam. It is important for Iran not to let a Sunni power or coalition of powers form on its western frontier. The farther west it pushes its influence, the more secure its western border becomes. Iranian control over Iraq is far from absolute. It derives some control from supporting Shiite factions in these countries in their own struggles for power. Iran has to constantly play the balancing games. The influence of Iran in the region is as under:-

- Iran’s position in Syria is under attack by Israel with uncertain relations with Russia and Turkey.
- Iran’s hold on Lebanon through Hezbollah is their strongest, but it’s based on the power of one faction against others.
- In Yemen the same factional power play exists.

Effect of Sanction

The U.S. sanctions strategy has badly hurt the Iranians and placed Iran in a difficult position. The economic conditions are as under:-

- According to International Monetary Fund estimates Iran's GDP will be roughly - 9.5 percent real GDP growth this year because of the sanctions. Inflation rate is up 40 percent to 50 percent this year.
- Iran's oil output has declined significantly since the U.S. reimposed sanctions in 2018. Its oil exports have dropped (estimates vary) to below 200,000 barrels per day way below the roughly 2.5 million bpd that the country was exporting before the sanctions.
- Iran's reserves of hard currency are thought to be sufficient only for several more months.
- Purchasing power of Iranians is almost half now. People are finding it difficult to make both ends meet. Basic necessities like food and medicine have become scarce.
- Foreign investment is largely frozen.
- According to the U.S. special envoy for Iran Brian Hook, sanctions have forced Iran to cut military spending by 29 percent this year.

The cost of Iran's proxy empire is an estimated \$16 billion which was financed by Iran's hydrocarbon revenues. The cost is even higher when factoring in Iran's energy and financial contributions to allied regimes. Iran's annual \$700 million cash transfer to the Hezbollah has

been slashed, forcing the organization to adopt an austerity program that have married fighters receiving only half their salaries and single fighters even less. However, striking Iran or strengthening oil sanctions will not solve the problem. As long as sanctions are enforced, Iran's economic crisis will persist. As it intensifies, Iran will cease to view other countries' oil dependence as an opportunity to be exploited through limited, carefully targeted strikes. Instead, with its back against the wall, it will have every incentive to go for broke.²

The American assumption that sanctions would force Iran to capitulate to U.S. demands for a far more stringent and comprehensive deal to curb Iran's nuclear and regional ambitions may not be fructifying. Iran's economy is not on the brink of collapse. The Iran's Central Bank has managed to stabilize the currency in recent months, smugglers have resurrected illicit networks to sell oil and the Government has imposed severe penalties on currency traders and businesses to restrict price rise and prevent widespread unrest. Ultimately, the status quo is simply unsustainable for Iran. Iran will become increasingly desperate. There is no serious political dialogue on relief of these sanctions. Iranians may assume that if they're suffering right now that they might as well make others suffer along the way.

Iran knows that negotiations with the U.S. are inevitable. Iran understands that it would be unwise to go to the negotiating table from a position of weakness. By utilizing its Houthi or Hezbollah proxies to increase the heat, engaging in international piracy on the Strait of Hormuz or taking hostages, Iran is trying to gain leverage before any renegotiation of the JCPOA.³ The lukewarm diplomacy between the U.S. and Iran, along with the relative quiet that has descended on the Persian Gulf in recent weeks, should not be taken for granted. Iran may be compelled to deliver another wake-up call to Donald Trump who

is trying desperately to end wars and score some foreign policy wins to bolster his 2020 reelection bid.⁴

Response of Iran

By causing instability in the Gulf, Iran is hoping to benefit from the hike in the cost of oil which is a vital lifeline to the Islamic Republic, especially after China signed a \$400 million deal to invest in Iran's oil, gas, petrochemical and transport infrastructure in return for the steady supply of Iranian oil paid for in Remnibi. China is having second thoughts on this investment. Iran has vowed to "resist", while warning that it will not suffer alone. Iran has been keeping the pot boiling by taking actions like the following:-

- Iran was suspected of attacking several foreign oil tankers on May 12 and June 13.
- A drone strike against two of Saudi Arabia's East-West pipeline pumping stations in May and an attack that caused a fire at that country's Shaybah oil field's processing complex in August.
- On June 20 Iran shot down a U.S. drone. That same day, Trump aborted a limited strike on Iran at the eleventh hour and ordered a U.S. cyber attack on a computer network used to plot attacks on tankers.
- Less than a month later, Iran seized a British-flagged tanker in retaliation for London's seizure of an Iranian vessel for allegedly violating EU sanctions on Syria. The tit for tat process is going on.

Iran is taking a calculated risk thinking that President Trump will not engage in a military conflict as he prepares for his 2020 election

campaign. Iran's escalation has served two interests: Make the U.S. and its allies pay a higher cost for its pressure campaign and establish the credibility of Iran's threats. Iran thinks that these actions will yield more favorable negotiating terms, facilitating the removal of sanctions even though the actions risk incurring U.S. or Saudi retaliation. Iran has accepted the risk that such an escalation could result in a conflict with the U.S., but its demonstration of a credible regional threat and a willingness to use it is forcing the U.S. to think twice about conducting a strike on Iran. This is serious brinkmanship strategy that aims to force the U.S. to shift its policies. One false step could ignite a military conflict between Iran and the U.S. Iran feels it has nothing to lose as its survival at stake. Given that Iran's long-term alternative is complete capitulation to Washington, Iran feels a risky game of brinkmanship is the lesser of two evils.⁵

After enduring a year of punitive oil and financial sanctions Iran has abandoned its policy of "strategic patience". Iran has shifted to a twin-track strategy, slowly resuming prohibited nuclear activities while disrupting global energy supplies. The September 14 attack on Saudi oil installations, whether it was Iran directly or indirectly through partners or proxies, was a clear message sent by Iran. It said that they can inflict pain to the Saudis and the oil infrastructure just like the west can on the Iranian economy. If Iran is prevented from selling oil, it will prevent the U.S. Persian Gulf allies from selling oil, too. The strikes may have raised tensions, but they did not significantly impede the transport of oil.⁶

So far, Iran has not paid any military price. Iran knows that the U. S. has two options to break the current paradigm: either stage a military

strike on Iran or weaken its demands by offering significant sanctions relief to start talks. Iran's strategy of summer brinkmanship seems to be paying dividends. It can be seen from the following:-

- Iran demonstrated that it poses a highly credible military threat to the Strait of Hormuz.
- It exposed Trump's extreme reticence about engulfing the U.S. in another Middle Eastern war.
- Iran's threat to one of the world's busiest shipping lanes sent a shock wave to the developed nations. Rather than bringing European powers closer to the U.S. sanctions strategy on Iran, the French proposal for a \$15 billion oil-backed credit line to Iran gained momentum.
- Trump's Gulf supporters who have a lot to lose from an actual war in the Persian Gulf are feeling uncomfortable. United Arab Emirates has intensified its security and diplomatic discussions with Iran since late July and reduced its military commitment in Yemen.
- The U.S proposal for a maritime coalition to deter Iranian tanker attacks did not get expected response. Only Australia, Bahrain and the United Kingdom have joined the U.S. led mission. Japan wants to run its own patrols in the Bab el-Mandeb strait between Yemen and Djibouti as part of anti-piracy missions. India is conducting independent patrols. European defense chiefs are debating an EU-only coalition.
- There are far too many vessels transiting through the narrow Strait of Hormuz and not enough military escorts to prevent

Iran from launching further attacks. U.S. is facing a massive dilemma in trying to deter the Islamic republic.⁷

Nuclear Program

Iran has been systematically rebuilding negotiating leverage with its nuclear program. The measures undertaken are:-

- In May, Iran announced that it would begin renegeing on its commitments under the nuclear deal — the Joint Comprehensive Plan of Action (JCPOA) — every 60 days. However, Iran made it clear that it would reverse its moves if the Europeans can provide Iran with economic respite from U.S. sanctions.
- Iran announced in May that it would increase its level of stockpiled heavy water and low-enriched uranium.
- Two months later, Iran said it would enrich uranium to 4.5 percent — above the JCPOA limit of 3.67 percent.
- On September 4, Iran declared it would lift limits on research and development work on its nuclear program.
- U.S. sanctions waivers on the nuclear program expire at the end of October. On Nov. 5, the Islamic republic is likely to install advanced centrifuges, boost enrichment levels to 20 percent or revert to the original design of the Arak heavy water reactor. The Chinese company that is redesigning Arak to fulfill the JCPOA's non-proliferation requirements could run afoul of U.S. sanctions and can lead to abandonment of the project altogether.

Diplomatic Measures

The U.S. has been trying to schedule a meeting with Iranian President Rouhani. According to a recent New Yorker article by Robin Wright the Trump administration attempted to set up a meeting between the leaders at least eight times (including two times on the sidelines of the U.N. General Assembly) citing European and French diplomats, Iran's reply is simple: Suspend the sanctions and then we can talk. Diplomatically Iran is doing well. European governments supportive of the nuclear agreement rejected by Trump last year blame aggressive U.S. policy for the current escalation. Germany's chancellor Angela Merkel said, "The deal to stop Iran acquiring military nuclear capabilities is a building block we need to get back to,"

Internal Policies

The attack on Saudi Arabia may be part of a power struggle within Iran between reformists seeking engagement with the West and hardliners opposed to dialogue with the U.S. However, attacks on this scale could not happen without the approval of the Supreme Leader, Ayatollah Ali Khamenei. Ultimately he is the one who makes the final decisions. He rejected any possibility of talks between Iranian and U.S. officials at any level as long as the U.S. sanctions remained in force.

With parliamentary elections approaching in February President Rouhani is also not about to commit any major mistake politically at home. Rouhani and his camp of moderates have to deal with Iran's conservative hardliners who will portray any talks with Trump as sheer recklessness, if they are not accompanied with real sanctions relief.

Proxy

Iran has worked to grow a network of proxy forces in the Mideast. Iran backs the Lebanese militant group and political party Hezbollah to pressurise longtime foe in the region, Israel. Iran has done the same with the Houthis to counter Saudis. Attacks claimed or attributed to these groups may have involved Iran directly or indirectly. This gives Iran tactical flexibility to claim attacks only when it is in its interests. It allows Iran to provoke U.S. and attack its allies with relative impunity. The region's Arab leadership is made to look helpless and Washington weak. This coherent and effective strategy seems to be working because global trust in Washington is low and popular support for Arab monarchs is almost nonexistent.

Iran is using its long standing strategy of using proxies to exert pressure on the U.S., Saudi Arabia and Israel. How U.S. will respond to Iran's rapidly evolving proxy war strategy remains to be seen.

U.S.— Iran Relations

There is a belief worldwide that the present U.S. administration fermented the current crisis by trashing the JCPOA, launching economic war against Iran, threatening Iran's economic partners and insisting on Iran's submission. An extraordinary coalition of Israel, Saudi Arabia and other Sunni states under one umbrella has emerged with the support of the U.S. The U.S. is concerned about an Iranian expansion. It is not alone. The Sunni world and Israel are in intense opposition to Iran. Turkey and Russia are wary of Iran but at the moment are content to see the U.S. struggle with the problem, while they fish in troubled waters. The U.S. can use force to topple the Iranian Government. Iran's

armed forces are no match for the U. S. However, any such action would require the U.S. to grapple with the state collapse. The country is well trained to fight irregular warfare. Iran could respond itself or use its clients to strike regional bases within range of Iranian missiles where infrastructure has not been built to protect vulnerable and expensive aircrafts and ships.

Iran can safely assume that U.S. will not consider a large scale invasion of Iranian territory. U.S. will debate policy choices hemmed in by political constraints and vacillate between a limited cruise missile strike or more sanctions. In such case, the regime will not be toppled or seriously threatened. Iran has demonstrated that it has no intention of entertaining any of the U.S. demands until it receives sanctions relief. However, Iranian Supreme Leader Ayatollah Ali Khamenei has indicated in the past that Iran is willing to place a cap on ballistic missiles whose range exceeds 2,000 kilometers. Various leaks also suggest that:-

- Rouhani's team has defined specific terms for potential talks, including a mechanism to export at least 750,000 bpd (compared to earlier demands of at least 1.5 million bpd).
- Accelerate the JCPOA timeline for Iran to sign the Additional Protocol to assuage nuclear proliferation concerns.
- Ensure Khamenei issues a fatwa against nuclear weapons as an additional confidence building motion.

The U.S. has not categorically rejected the French proposal. It was hoped that a plan by French President Emmanuel Macron to offer a \$15bn line of credit to Iran, in return for its compliance with the

nuclear deal and a halt to its destabilizing activities in the region, would come to fruition. But the plan has not been approved by Mr. Trump. The September 10 dismissal of U.S. national security adviser John Bolton, a hawk who has called for regime change and military action against Iran, may indicate that Trump is removing obstacles to a potential Iran negotiation. Trump has conveyed publicly that he at least wants negotiations to cover Iran's nuclear and ballistic missile program. However, the U.S. special representative for Iran Brian Hook said, "We can't make it any more clear that we are committed to this campaign of maximum pressure and we are not looking to grant any exceptions or waivers." Sigal Mandelker, the U.S. Treasury Department's undersecretary for terrorism and financial intelligence, reinforced that message when she asserted that "there will be no waivers of any kind for Iran's oil."

The question is whether U.S. actually relents on sanctions or chooses to double down on its maximum pressure campaign to force through what it wants.

It's doubtful that U.S. President Donald Trump's new sanctions against Iran's Central Bank, along with his commitment to modestly increase U.S. troops and equipment in the Gulf region, will deter Iran from attacking Saudi Arabia again. The Iranians' strategy for pushing back against Washington's "economic warfare," is to scale up their violence in the region and specifically go after vulnerable U.S. partners. If Iran responds to these new sanctions by bombing a Saudi palace or a government critical infrastructure it shouldn't come as a surprise.

Relations with Saudi Arabia

Iran has threatened to retaliate for any U.S. or Saudi military action.

Should that happen and as a result there are Saudi physical casualties, it would constitute crossing the red line. Crown Prince Mohamed bin Salman's (MBS) influence is significant. MBS's immediate reaction to another devastating Iranian attack would be to test Trump's pulse. But if he suspects that the U.S. response would be somewhere same he might go it alone. Saudi Arabia's military capacity is weak compared to Iran, its options would therefore be limited. The Kingdom cannot afford an openended war with Iran because of the following reasons:-

- Saudi Arabia needs every penny to finance Saudi Vision 2030, on which MBS's domestic credibility rests.
- The local pressures of such a war, including national leadership and military management, would be too great for a young leader who is stuck in a quagmire in Yemen. He is accused of involvement in the murder of Saudi journalist Jamal Khashoggi.
- A war with Iran would have religious, Sunni-versus-Shia connotations. It would embolden the radical Saudi clergy, whom MBS has been trying hard to isolate in his process of power consolidation.
- The Saudi military is not made for long term campaigns. It lacks manpower and experience. It can throw a punch thanks to advanced U.S. equipment but it can't sustain a long fight. Iran can, 1980-88 Iran-Iraq War is an example.

MBS would have to weigh these concerns against the costs of inaction. The perception of weakness at home, especially in the face of a historical enemy, might invite disgruntled princes and clergymen to challenge

his reign. But what happens if MBS starts a war with Iran without having to finish it? The U.S. will no longer afford to be a bystander. Washington would have to act militarily. To prevent this scenario more serious and regular consultation between Trump and MBS has to happen. Till now MBS has done the right thing by exercising prudence and leaning on the Americans. But if Iran strikes again, Trump cannot take his patience for granted.⁸

Relations with Israel

The security of the U.S. Middle Eastern partners, specially Saudi Arabia, the United Arab Emirates and Israel are threatened by Iran's proxy militias. The Iran backed militias in Iraq and Syria, Hezbollah in Lebanon and Syria and the Houthi movement in Yemen, encircle Saudi Arabia and form a contiguous land corridor from Iran to Israel's borders, with formidable sphere of influence. The Iranian sphere of influence continues to exist but is coming under extreme pressure. Iran is aware that if this sphere collapses, its western border gets exposed.

The Israelis are attacking Iranian forces in Syria and exchanging mutual fireworks with Hezbollah. The Saudis and the United Arab Emirates are supporting anti-Iran forces in Yemen and conducting an air campaign. Attacks reportedly by both Saudi and Israeli participation on major bases belonging to the Iran revolutionary Guard Corps (IRGC) and the proxy militias have continued, including in Iraq's western Anbar province and Syria's city of Bukamal opposite Iraq's Qaim border crossing. The Israeli Government is doing everything to keep the pressure on Iran and spoil any chance of negotiations. It still can count on a friendly and pliable President in the White House. If U.S. forces in Iraq become targets for Iranian retaliation against Israeli strikes, the

White House could find itself on a path to escalation with Iran, even as it wishes to avoid such a road.

Iran's Options

Iran is sending a signal to the West that there are serious consequences for pressurising Iran. It can seize foreign tankers in the Persian Gulf, disable oil tankers with mines and other explosives or attempt to close the Strait of Hormuz. The very attempt alone would churn global oil markets. Insurance rates for oil tankers transiting the strait have already increased tenfold between May and September. Any effort to block the waterway would provoke another drastic hike.

Iran is unlikely to use the same approach if it attacks Saudi Arabia again. Since 2017 it has targeted Saudi Arabia by:-

- Cyberattacks.
- Shia militant raids in the restive Eastern Province.
- Houthi ballistic missile strikes.
- Sabotage/seizure operations against ships.
- Drones launched from Iraq.
- Latest cruise missile/drone attack.

If there is any pattern to all of this, it is that Iran does not strike twice in a row in the same place, against the same vulnerability, using the same means. Iran is eager to test its own capabilities and demonstrate its range of coercive tools while remaining unpredictable.

The September attack has advanced following interests of Iran:-

- The strikes harmed Iran's adversary in Yemen and rival in the wider Gulf region, Saudi Arabia. They revealed the vulnerability of the Saudi oil industry.
- If the Trump administration, unilaterally or in conjunction with Saudi Arabia, decides to retaliate for the attacks; it will intensify the diplomatic isolation of U.S.
- By increasing the geopolitical risk premium attached to oil prices, the strikes may persuade oil consumers that it would be safer to lift international sanctions, both to enable Iran's oil to return to the market and to reduce the state's incentives to attack its neighbors' oil facilities.

The following imperatives apply to Iran:-

- It should weaken the anti-Iran coalition.
- Protect its allies in the region.
- Must generate pressure on U.S. to ease pressure on the Iranian economy.⁹

Iran therefore is likely to take following actions:-

- Try to avoid burning bridges with Europe.
- Keep a lid on domestic dissent at worsening economic conditions.
- Unlikely to attack with the same frequency as it did during the summer in the Persian Gulf.
- Proceed with caution in reactivating its nuclear work.

The U.S. President Donald Trump clearly wants to avoid a military strike on Iran out of concern for what would come next. Realising this, Iran is assessing whatever it has more room to push the envelope because of Trump's hesitancy.

Military Aspects

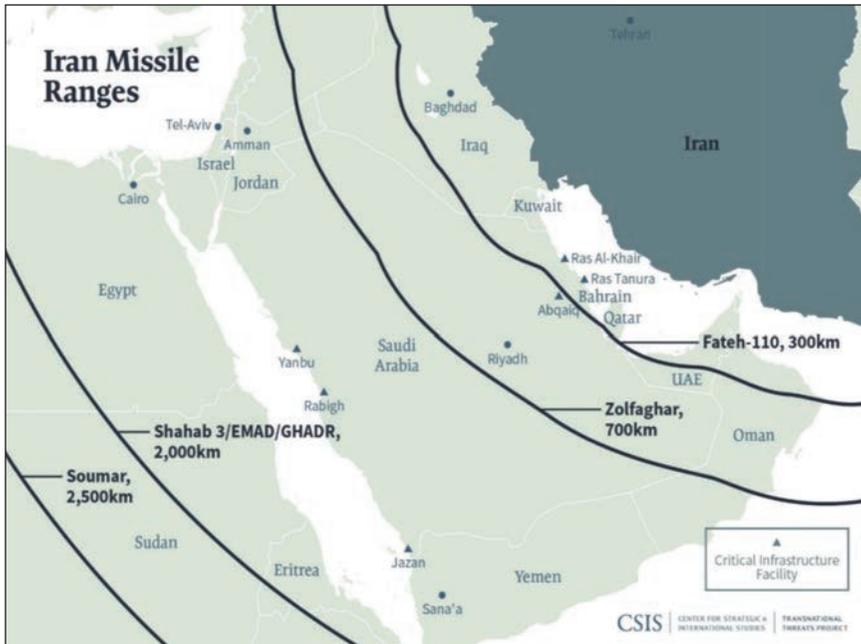
Iran's conventional military capability is anything but frightening. These are not that of a rising great power in the Middle East, but rather of a country struggling to field a modern military, attract top-tier talent and stabilize its currency.

Badly affected by U.S. sanctions and cut off from Western military technology Iran's air force is an ancient relic. Iran's Navy is essentially a collection of small boats which could be taken out of the water if a war was to erupt. According to figures compiled by the International Institute for Strategic Studies, Iran spends a pittance on defence compared to its rivals in the Gulf. The Gulf Cooperation Council's cumulative military expenditures in 2017 were approximately eight times larger than Iran's. Iranian officials are well aware of these facts. This is why they continue to hone their asymmetric capabilities as the first line of defense. Given Iran's general conventional military inferiority relative to the U.S. and U.S. allies, Iran has placed considerable emphasis on building up asymmetric forces that could give it an advantage in a conflict with its better armed adversaries. Proximity to the critical infrastructure of its regional rivals makes cruise and ballistic missiles key to this strategy.

The U.S. Director of National Intelligence in a report published in January 2019 states, "Iran continues to develop, improve and field a range of military capabilities that enable it to target U.S. and allied

military assets in the region and disrupt traffic through the Strait of Hormuz. These systems include ballistic missiles, unmanned explosive boats, naval mines, submarines and advanced torpedoes, armed and attack UAVs, anti-ship and land-attack cruise missiles, anti-ship ballistic missiles and air defenses. The Strait of Hormuz is critical to the global economy. Twenty million barrels of oil—20 percent of the world's oil supply—traverse the narrows every day. Saudi and UAE exports alone provide 10 percent of world oil consumption.” Iran has introduced large numbers of cruise missiles into its arsenal. It has fielded more drones including the suicide versions. It is working to replace its previously inaccurate ballistic missiles with much more accurate versions of varying types and flight profiles. Defending against them is a significant challenge. Iran now has some missiles capable of striking anywhere in Saudi Arabia.

Taking overt, direct action by Iran against internationally significant oil facilities would be an open invitation for war. So, Iran is seeking ‘plausible deniability’. The Arms Control Wonk analysts ask, “Is Iran secretly designing, testing and producing missile systems for exclusive use by its proxies? If a few Houthis can cause this extensive damage, imagine what Iran could do if it was forced into a military conflict. Iran has proved in the past few months that it has the will to pull the trigger as well as the military power to do so.” Iran has kept up its information warfare campaign. A military strategist with the Revolutionary Guards, speaking on the condition of anonymity was questioned whether the Houthis alone could have carried out such a complex and effective attack without Iranian help. The Iranian strategist said, the message to the West and its regional allies was the same. He said if the U.S. strikes Iran, “the flames of war in the Persian Gulf will burn you all.” Gen. Amir



Ali Hajizadeh, the head of the Revolutionary Guards' air force said, "Iran was prepared for a full-scale war. Everybody should know that all American bases and their aircraft carriers in a distance of up to 2,000 kilometers around Iran are within the range of our missiles. Because of the tension and sensitive situation, our region is like a powder keg... Neither us nor the Americans want a war. When these contacts come too close, when forces come into contact with one another, it is possible a conflict happens because of a misunderstanding... Of course, some forces facing each other in the field could do something by which a war could start. We have always prepared ourselves for a full-fledged war."

Missile Capabilities

The above diagram illustrates the ranges of a sample of Iran's missile

inventory, including the Fateh-110 (300 km range), Zolfaghar (700 km), Shahab-3/Emad/Ghadr (2,000 km), and Soumar (2,500 km). It shows that Iranian missiles can reach all critical infrastructure in Saudi Arabia.

Iran has the largest ballistic and cruise missile force in the Middle East, capable of striking targets as far as 2,500 km from its borders. Iranian missiles continue to improve in terms of range, speed, flight profile and destructiveness. All of Saudi Arabia is within range of Iranian missiles. The number of Iranian missiles capable of reaching Saudi Arabia would overwhelm virtually any missile defense system. In the event of military escalation, Iran could use its largely road mobile missile force to target critical infrastructure in Saudi Arabia and other Gulf states. Iran has the largest ballistic and cruise missile force in the Middle East, capable of striking targets as far as 2,500 km from its borders. Iranian missiles continue to improve in terms of range, speed, flight profile and destructiveness. Several of the sites such as the port of Ras Tanura, Ras Al-Khair power and desalination plant and the Abqaiq processing and stabilization plant exist within range of Iran's land-based ballistic missile force. These sites are also vulnerable to ship launched missiles. Targets further from Iran's border, such as the refinery at Yanbu, located along the Red Sea, are also within range of Iran's medium range ballistic missiles.

Navy

Iran is the only Persian Gulf country that possesses submarines. The anti-submarine capability of regional countries is extremely limited. Iran's submarine force consists of three kilo-class submarines capable of laying mines and launching torpedoes, as well as other imported and domestically produced midget-class submarines. Iran maintains a

formidable arsenal of mines, coastal defense cruise missiles, submarines, unmanned aerial vehicles and fast-attack and patrol craft. Iran possesses a large inventory of over 2,000 mines and has invested in new mines and mine-delivery vessels. Iran has incorporated smaller vessels into its mine-laying strategy along with submarines and larger vessels.

Iran employs smaller vessels that emphasize speed and mobility as part of its irregular naval doctrine. Iran can employ these fast attack vessels to fire on tankers, lay mines, or conduct swarming tactics to isolate and overwhelm targets. Iranian acquisition of the Houdong-class missile boats, C-14-class missile boats, and MK 13-class patrol craft (all from China) highlights Iran's focus on irregular capabilities and their ability to fire precision missiles from mobile maritime platforms. Iran also produces domestic variants, such as the Peykaap I-/II-class patrol craft and missile boats.

Cyber Warfare

The Stuxnet virus which targeted Iran's nuclear program in 2010, spurred Iran to invest in cyber capabilities and to formulate a strategic vision that would enable deterrence against future destructive cyber attacks. It is not clear whether Iran has developed strategy or doctrine for integrating cyber operations to achieve strategic ends. It appears that the structures are in place to do so, such as the Supreme Cyberspace Council, established in 2012. Iran showed its prowess in cyber domain when cyber attacks against Saudi oil companies began with a destructive attack in 2012 that resulted in the loss of some 30,000 computers on the Saudi Arabian state oil company's (ARAMCO's) networks. However, the damage did not affect oil production of ARAMCO directly as the business networks were segregated from the operational control systems

In January 2017, Shamoon attack on the Saudi petrochemical company Tasnee destroyed hard drives and wiped data. This attack was followed by a subsequent attack on ARAMCO in August 2017 involving TRITON intrusion malware. The increased sophistication of the attacks suggests investment, collaboration and coordination across multiple Iranian cyber actors as part of a comprehensive operation led by the Iranian regime. This is an indication that Iran is improving at coordinating its attempts to disrupt adversary organizations and countries, primarily Saudi Arabia. Although Iran appears to be the most likely perpetrator of this attack, the cyber security firm Fire Eye has concluded that the TRITON intrusion software itself was likely developed by a Russian lab. The U.S. Director of National Intelligence recently concluded that Iran “is capable of causing localized, temporary disruptive effects—such as disrupting a large company’s corporate networks for days to weeks—similar to its data deletion attacks against dozens of Saudi governmental and private-sector networks in late 2016 and early 2017.”

Iran’s indigenous cyber operations are performed by the Iranian Cyber Army (ICA) and various proxies. Generally, Iranian cyber operations primarily focus on regional adversaries, are retaliatory in nature and seek to deter adversaries from intervening in Iran’s domestic affairs. Although Iran’s cyber hacktivist groups vary in degrees of maturity and technical sophistication, they share many basic techniques and tools. According to Hewlett Packard’s Security Research group, Iranian hacktivist groups use a combination of technical and non-technical tactics to exploit targets. Its members are generally well-educated and well-connected. Scholars at the research organization CNA have assessed that Iran has been coordinating with foreign hacktivists with whom Iran shares ideological goals, including Shi’a Islamist hacker groups, the Syrian Electronic Army and Lebanese Hizballah.

Iran's use of cyber operations is intended to achieve two main goals: to monitor and control the flow of information domestically and to retaliate for threats from abroad. John Hultquist, director of intelligence analysis at Fire Eye, Inc., a security firm, told The Associated Press that Iran had collected intelligence using cyber intrusions during acts of sabotage against oil tankers in the Gulf region earlier this year. Hultquist said, "Frogmen, drones, third-party proxies and cyber attack are all capabilities Iran can use to turn up the heat. All of them are on the table right now and companies operating in the Gulf should take notice and prepare."

The U.S. has carried out a secret cyber operation against Iran following the Sept. 14 attacks on Saudi Arabia's oil facilities. It was aimed at Iran's ability to spread propaganda. James Lewis, a cyberexpert with the Washington based Center for Strategic and International Studies said, "You can do damage without killing people or blowing things up; it adds an option to the toolkit that we didn't have before and our willingness to use it is important. It may not be possible to deter Iranian behaviour with even conventional military strikes".¹⁰

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Chapter 7

Effect on U.S. Interests

U.S. Interests

Saudi Arabia is one of the world's leading oil exporters and produces 10 percent of the world's oil supply. Its supplies affect global oil prices significantly. In 2018, Saudi crude oil exports to the U. S. was almost \$22 billion and U.S. weapons sales to Riyadh was about \$3 billion. America is no longer Saudi Arabia's top customer. China's crude oil imports from Saudi Arabia reached nearly \$30 billion last year. The U.S. is now the world's largest oil producer and its reliance on Saudi imports has dropped considerably. Though oil prices briefly spiked following the attack, there was no panic in the global market. However, the attacks demonstrated that U.S. domestic gasoline prices remain connected to international markets.

The U.S. interests in this region are:-

- Promoting a stabilizing balance of power between Iranian led Shiites and Saudi led Sunnis.
- Preventing either Iran or Saudi Arabia from acquiring nuclear weapons.
- Deterring Iranian aggression against Israel, one of the reasons of U.S. presence in Syria.

For the U.S., it is not the strategic imperative to protect Saudi oil. This is a big problem for Saudi Arabia itself. Several other factors add complexity and dilemmas to U.S.-Saudi ties. Some of them are:-

- Saudi Arabia's disturbing behaviour including a brutal war in Yemen and its mixed contributions to regional security.
- Saudi support for extremist Islamist forces in Syria's civil war.
- Saudi effort to isolate and punish Qatar, which hosts the most important U.S. military base in the Gulf.
- Its domestic human rights practices, which prevent Americans from developing a sense of shared values.
- The Kingdom's murder of dissident journalist Jamal Khashoggi after luring him to a diplomatic building in Turkey which has weakened American confidence in the country's leadership and direction.¹

There is a school of thought that feels U.S.' efforts to stop Iran from supporting its allies by pressing the Iranian economy is unlikely to work. For Iran, support for its alliance network is a core national security issue. Iran's support for non-state actors like Hezbollah are also not financially intensive and therefore can continue under sanctions. Saudi princes and military chiefs appear to be no match for an angry, cornered Iran. For the U.S., the Saudis are again proving to be problematic and needy partners. Another reality is that the age old fight between Iran and Saudi Arabia is not necessarily America's fight. Americans are now questioning: Is it in U.S. national interest to defend Saudi Arabia or its petroleum infrastructure from attack? Should U.S. defence personnel put their lives on the line for the regime of Saudi monarchy?²

U.S.' Dilemma

As the greatest military power in the anti-Iran coalition, the U.S. cannot ignore the September attack. But if it strikes, it invites a response from the Iranians. If it does not strike, it weakens the foundations of the anti-Iran alliance and strengthens Iran. It is difficult to see how the U.S. can respond without risking more attacks on Saudi Arabia. It is likewise difficult to see how the U.S. can avoid striking without losing the alliance's confidence.

Iran is a revisionist power. It is challenging the status quo throughout the Levant and the Gulf. The U.S. and its allies are trying to keep Iran in check. The U.S. has tried to pressure Saudi Arabia to de-escalate, whereas Iran is pushing the Houthis to dig in.³ Younger Iranians want economic opportunity. Drawing the country into the larger international community would intensify the country's internal contradictions. Had Washington done more to ease Iranian access to Western markets, pressures for more openness would have risen despite opposition from hard core elements. U.S. has to proceed cautiously so that they don't back Iran into a corner by threatening the survival of the regime, which might cause Iran to further escalate.⁴

Relations with Saudi Arabia

There is growing opposition to U.S. involvement in this conflict. Senator Chris Murphy said, "It's simply amazing how the Saudis call all our shots these days. We don't have a mutual defense alliance with KSA, for good reason. We shouldn't pretend we do. And frankly, no matter where this latest drone strike was launched from, there is no short or long term upside to the U.S. military getting more deeply

involved in the growing regional contest between the Saudis and Iranians.” Sen. Rand Paul (R-Ken.), took to CNN to warn against striking Iran. He said, “This is a regional conflict, that there’s no reason the superpower of the U.S. needs to be getting into bombing mainland Iran. It would be a needless escalation of this. Those who loved the Iraq War, the Cheneys, the Boltons, the Kristols, they all are clamoring and champing at the bit for another war in Iran. But it’s not a walk in the park.” Sen. Davis said, “There’s too many people who have lost touch with understanding what war is all about. They think it’s easy. Just imagine this. What we go ahead and do this, and Iran makes good on their threats, and American warships get sunk in the Gulf? This is not America’s fight. The American armed forces are not on loan as a Saudi defense force.”⁵

Sanctions

There is a feeling that putting more sanctions against Iran will not work. Nephew from Columbia University’s Center on Global Energy Policy said, “As much as I see sanctions as a powerful tool, in the context of the attack and the existing sanctions, this will be seen as anemic as a response, if this is the totality.” Sanctions have little track record of success. It did not succeed in North Korea and Saddam Hussein’s Iraq. Sanctions are more likely to produce resistance than capitulation.

Others feel that there is adequate room to pressure Iran further. A weak economy is a perennial chink in the armour in Iran’s ability to maintain control. Alireza Nader, the CEO of New Iran, a research and advocacy organization in Washington said, “Economically, there are a number of things the U.S. can still do”. He pointed to continued trade between Iran and its neighbours. Iran still enjoys a U.S. waiver to sell electricity and

natural gas to Iraq—as well as to its proxies such as Hezbollah that are able to move funds through financial systems such as Lebanon's. One potentially explosive option available to the Trump administration is to sanction on humanitarian areas of trade that are nominally unaffected by U.S. sanctions like food, medicine and medical supplies. However, this could deepen the rift between U.S. and the European Union.⁶

So far, the U.S. administration has responded mildly. It has increased sanctions on Iran. Since economic strangulation only prompted the Iranian attack it is hard to believe that few more sanctions will stop new aggression.

Options for War: U.S. Strategy

The new U.S. strategy orientation as set forth in the 2017 National Security Strategy and 2018 National Defense Strategy is sometimes referred to as a “2+3” strategy, meaning a strategy for countering two primary challenges (China and Russia) and three additional challenges (North Korea, Iran and terrorist groups).

The U.S. strategy has shifted away from the use of military power using large scale American military to the use of economic power on China, Russia and Iran. The U.S. action to cancel the Iran nuclear deal was to do less about fear of Iranian nuclear power and more about imposing a massive sanctions on the Iranian economy. However, U.S. has increased its military presents in the Gulf region significantly since the Gulf War. It has built large air bases in Qatar and the United Arab Emirates and expanded its naval presence in Bahrain.

U.S. does not want to go to war with Iran for valid reasons like:-

- Iran has three times the population of Iraq.

- The Iranian regime is stable and better entrenched than Saddam Hussein's dictatorship.
- Iran possesses unconventional weapons, missiles. Its allies could spread chaos throughout the region.
- American forces in Syria and Iraq would be vulnerable. Iraq's stability could be at risk.

Any American retaliatory military action against Iran may provoke a regional war from Israel to Iran. A regional war can devastate both sides of the Persian Gulf. If it spreads, Iran has powerful allies in Syria and Lebanon; Hezbollah is far more capable than the Houthis. If the war spreads, the Israelis will jump in. The U.S. would like its regional partners to lead the strike against Iran while remaining at the arm's length from the action. European allies, distressed by the U.S. withdrawal from the 2015 nuclear agreement, have been reluctant to participate in an American maritime security initiative launched in the Gulf over the summer.⁷

The Saudis have spent a fortune on air defense since 1991. But they failed completely during September attack. Apparently all the air defense systems were oriented in the wrong direction. Gulf nations do not share missile defense information with one another in spite of U.S. insistence. It's difficult to defend against cruise missiles and small drones because they flow low and slow allowing them to literally fly under the radars that would detect them.

Questions that Need Answers Before any Attack on Iran. An attack on Iran can lead to major conflict in the Gulf region involving many countries. It could rapidly escalate into a big war across a range of battlefields, including cyber, all over the world. The effects of the

conflict and conflict resolution mechanism and de escalation matrix need to be thought of in details beforehand. U.S. needs to ask itself the following:-

- The U.S. spends billions of dollars on its intelligence gathering activities. Despite being an important hot spot, attack on Saudi oil facilities is a big U.S. intelligence failure. How did it happen?
- How certain U.S. is that it is Iran and not an Iranian proxy acting for its own motives was behind the attack?
- Is there any treaty obligation for U.S. to respond militarily for Saudi Arabia like the mutual-defense treaty between the U.S. and Japan?
- Is U.S. Congress taken into confidence? Any action like this which has far reaching consequences must be authorized by Congress.
- What is the U.S. national interest?
- How does the U.S. respond? Does it do it directly? Does it do with a proportional response? Does the U.S. escalate?
- Does the U.S. let the Saudis respond because they were the ones targeted?
- Can the U.S. get its major partners and allies involved? Its major allies in Europe are not on board with U.S.
- What are the goals?
- Who's in charge of actions in U.S. administration? There has been conflicting signals coming out from U.S.⁸

Deterring Iranian Actions. U.S. is following a largely defensive response, that is, a strategy of deterrence-by-denial rather than strategy of deterrence by punishment by attacking Iran. Studies of deterrence theories and historical practice suggest that denial strategies are inherently more reliable than punishment strategies. Moreover, denial strategies minimize the risks of escalation inherent in deterrence-by-punishment strategies. The best way to protect critical infrastructure in countries like Saudi Arabia may be to develop a robust deterrent strategy that credibly signals to Iran that it will be punished if it moves up the escalatory ladder. At the same time it should offer a political exit route to the current conflict. U.S. should consider taking measures to prevent escalation and protect critical infrastructure in Saudi Arabia. Some of the steps may be:-

- U.S. Government and private sector should continue to help Saudi Arabia and other regional countries harden their critical infrastructure from Iranian strikes.
- Continue to improve the integrity, resiliency and redundancy of cyber networks.
- Should continue to support the development of a well-dispersed complex network of bases and command centers that are hardened against possible strikes and situated beyond the range of Iran's most numerous attack systems.
- Ensure that sufficient stocks of air delivered munitions are stored in survivable bays in the region.
- Should ensure that U.S. keeps sufficient numbers and types of mine countermeasure vessels, land based fighter aircraft, Patriot

and Terminal High Altitude Area Defense (THAAD) surface-to-air missile batteries, high end intelligence, surveillance and reconnaissance (ISR) orbits and attack submarines.

- U.S. and its partners should focus on deterring Iranian escalation through threat of, and when appropriate, use of measured offensive actions.
- U.S. should focus on deterring escalatory missile and cyber attacks against oil, desalination, electricity, Supervisory Control and Data Acquisition (SCADA) and other infrastructure.
- U.S. should aim to respond in ways that don't escalate the conflict. U.S. does not always need to respond directly to Iranian activity, but can operate by, with and through partners in the region.
- Actions in response to Iranian hostility might include targeting unmanned Iranian drones, seizing Iranian ships including tankers, targeting Iranian partner forces in countries like Yemen and Syria and conducting measured offensive cyber operations against Iranian air defense, military command and control or critical infrastructure systems. Clear messages to Iran's leadership about further responses should be given.
- U.S. should be careful not to threaten the survival of the Iranian regime, which would raise the prospects of escalation and interstate conflict.⁹

Response Options. From day one, the U.S. has accused Iran of being responsible for the drone and cruise missile attacks on Saudi Arabia's oil

refinery. Being the only superpower and a close ally of Saudi Arabia what the U.S. should do in response? Some analysts argue that U.S. should deescalate the current situation by taking the following measures:-

- U.S. should stand down its military readiness, offer to host multilateral discussions with oil consuming nations, energy companies and tanker operators over establishing shared naval security in sensitive waterways of the Middle East. Other wealthy industrialized nations should do their bits for their own economic security.
- U.S. should initiate proposal for talks. It will be tough. Both the head of the states have refused any dialogue. However, in back channel discussions Iranians supposedly suggested that if the U.S. reverse the latest sanctions on oil sales to wreck Iran's economy talks can happen.
- U.S. policymakers should play the long-game. Its ultimate objective should be the liberal transformation of Iran. U.S. should encourage Iran to open up creating more opportunity and influence for a younger generation that desires a freer society. That requires greater engagement, not isolation.¹⁰

The U.S. is in a tricky situation. The U.S. and Saudi Arabia both have the capability to retaliate against the Houthi and Iran, but the options are complex and uncertain. Striking at key Houthi targets inevitably involves civilian casualties. Such strikes are unlikely to halt further Iranian support of the Houthi. At the present state, striking at Iran means escalating against a state whose involvement is uncertain and unproven and when such strikes are unlikely to get UN support. The attacks did not directly affect the U.S. There is also the temptation of doing nothing. U.S. has been avoiding direct military action in favour

of applying economic pressure. However, Saudi Arabia is an important player in the Sunni Arab world. Failing to respond to an Iranian attack on a vital Saudi facility could help Iran increase its power throughout the region.

The U.S. can take the following actions under the present circumstances:-

- U.S has to manage the escalation ladder. Saudi Arabia has the right and responsibility to protect its energy and other civilian infrastructure and conduct offensive actions. However, escalation can make future attacks more likely and escalate the conflict when it will be difficult to deescalate.
- To politically and economically isolate Iran. So far the other signatures of the Joint Collective Plan of Action have been reluctant to completely side with U.S and continue to have economic relations with Iran.
- Introduce new sanctions. But sanctions do not have the psychological impact that military action has. U.S. has already imposed painful sanctions on Iran's economy. Any further sanctions would have limited effect.
- Step up international efforts for a peaceful solution to the conflict in Yemen. As long as the conflict continues, Iran has a relatively cheap way to impose costs on Saudi Arabia.

Military Options

There are number of military options available to U.S. All have potential drawback also:-

- a. **Imposing Blockade of Iranian Ports with a selective Closure of the Strait of Hormuz.** This strategy has following weaknesses:-
- A large naval force of multiple carrier battle groups would have to be deployed for a potentially unlimited time.
 - The fleet could come under attack from Iranian missiles. In spite of having effective anti-missile capabilities, one odd missile can always sneak in causing major damage to an important U.S. vessel. Anti-missile air attacks can escalate the situation.
 - If Iran does not yield under the pressure, the blockade could continue indefinitely, since ending it without a successful outcome would be seen as a defeat.
- b. **To Launch Strikes against Iranian Targets.** The most appropriate target would be the factories producing drones and cruise missiles, cruise-missile depots, launchers, drone facilities, or oil fields. A covert operation may be necessary to restore deterrence. Accurate intelligence may become a problem. If a blockade doesn't shatter Iran's economy, then escalation to eliminate its offensive air capability is needed. Any U.S. attempt to eliminate Iran's strike capability can be costly. Hidden Iranian missiles can attack regional targets. As with a blockade, an air campaign can go on indefinitely opening the door to Iranian countermoves and could escalate into an extended operation.
- c. The other option could be an aerial bombardment targeting Iran's nuclear infrastructure. Iran's nuclear facilities are broadly distributed and deeply buried. For example, the Fordow Enrichment Facility is under 200 to 300 feet of solid rock. Such an effort is therefore unlikely to succeed permanently and has serious consequences for Israel and U.S. forces in the region.¹¹

- d. **Sending in Ground Troops.** U.S. military will go back to occupation warfare. The U.S. military can defeat the Iranian military and occupy terrain, but to hold it against a hostile militia would cause U.S. casualties which cannot be sustained. With a population of 82 million people, Iran is a big and rugged country, more than twice as large as Iraq or Afghanistan.
- e. **Hitting Proxy Targets.** Iran has invested a great deal of time, resources and risk in creating these proxy forces in Iraq, Syria, Lebanon and Yemen that are now holding territory in these countries. These are potential targets that are of high value to Iran. Hitting these targets would directly hurt Iran's interests but could be carried out at lower risk and at higher cost than other options. Alternatively, the U.S. could attack Iranian forces in Syria but that also would have a lower impact.¹²

It appears that there is no good military options available: Strike back and risk war now; don't strike back and risk war later. Doing nothing could destroy the anti-Iran bloc the U.S. has worked hard to create. This could invite even more aggressive Iranian actions. U.S. could retaliate militarily, risking a wider war with Iran and its proxies. One option could be a symbolic retaliation. But the problem with retaliations is that they tend to get out of hand.¹³

U.S. Playing it Smartly

U.S. and its partners has been playing smart in a long war that it can actually win by continuing to let Iran lose. Iran's ability to project power across the Arab world's geographic heartland depends on its ability to dominate neighboring Iraq. Without Iraq, Iran has no land corridor to



Source : <https://www.bbc.com/news/world-middle-east-50040670>

Photo of an oil tanker attacked off the coast of Saudi Arabia, released by Iran

the Mediterranean nor to the Saudi border. Since July 19, there has been at least five major air strikes targeting Shiite militia munitions depots storing Iranian missiles. Though no one has claimed responsibility for the operations, suspicion points to the U.S. and Israel.

The long war goes beyond mysterious air strikes. Every day that sanctions are in force, Iran bleeds economically. U.S. and its allies and partners can continue its efforts to degrade Iranian capabilities through a combination of financial pressure and often non-attributable targeted strikes. There is recent report of an Iranian oil tanker getting hit by a missile attack which has not been attributed to any country.

France, Germany and the United Kingdom hold Iran to be in violation of United Nations Security Council Resolution 2331, which calls upon Iran to refrain, for eight years, from developing ballistic missiles capable of delivering nuclear weapons. This provided Europe with a justification for staying the course on Trump's sanctions and thus tacitly supporting the U.S. war of attrition. The Trump administration so far

has not taken the bait of starting a conflict. As of now Iran is losing the war of attrition with the U.S.¹⁴

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Chapter 8

Effects on Other Players

Iraq

Iraq is in difficult situation. Iraq cannot challenge Iran's use of allied Iraqi militias to strengthen its forward defenses at Iraq's expense. These powerful Iraqi militias have a strong 'convergence of interests' with Iran. Iraq can not alleviate the concerns of the United States and other neighbors who are threatened by Iran. Meanwhile, Iraq's government appears overwhelmed by the difficult task of establishing good governance, combating corruption and creating an inclusive meritocracy with real equal opportunity for hitherto marginalized groups. Its failure is inseparable from Iraq's deepening entanglement in the rising tension with Iran.

Israel

Israel is clear that it does not want any nuclear deal. They have conducted hundreds of strikes, largely targeting Iranian-linked sites in and around Golan Heights in south-western Syria. Now they are striking almost everywhere in Syria, deep into Iraq, including around Baghdad, as well as in Lebanon.

Israel wants to keep an eye and limiting the capabilities that could target them from Syria, Iraq and Lebanon. Israel has been quite aggressive on

Iranian targets. But Iran has not responded or escalated the conflict there.

Even if Israel wants to help Saudi Arabia quoting a commonality of interest, that would be a little too much considering religious and political factors in the region.

China

Being the world's largest oil importer, China has reasons to worry. Their economy will be badly affected if there is uncertainty in oil supplies. But China would be happy with the following developments:-

- U.S. getting distracted in the Gulf.
- U.S. sending more carriers to the Gulf. Out of three carriers on station at any given time, if two of them are in the Gulf, that leaves only one is near China.
- U.S. taking unilateral actions and alienating its allies.
- China can strike really advantageous deals with Iran because of Iran being an isolated state.
- Draw the U.S. away from China and create opportunities for them in West Asia, Europe and in the Western Pacific.

Chapter 9

Military Implications

Changing Nature of Warfare

The September attack on Saudi oil installation highlighted the changing character of warfare. When the Operation Desert Storm began in January 1991, all were impressed by the advent of frontier technology in warfare. The U.S. led forces smashed the Iraqi Armed Forces spectacularly. In Afghanistan at the initial stages also same thing happened; give a target to the U.S. coalition forces and the target gets destroyed with impunity. However, adversaries do adapt. During the second Gulf War and the later part of operations in Afghanistan no target was offered; enemy got mixed with people. Coalition forces could not anticipate that the war would lead to ideological struggles, proxy wars, terrorism, insurgency or competition with outside powers over the future of the region. The character of warfare changed.

State actors, with their conventional military, also started adapting to changing circumstances. Russia and Iran are two old civilizations. They have rich history, culture and war experiences. Though economically they may have gone down considerably, they will not go down the tube so easily in strategic affairs. One can call it Hybrid, Gray Zone, Fourth Generation, Compound, Asymmetric, Long, Small, et al Warfare or as the Russians call it New Type, Non-Contact or Sixth Generation

Warfare. The Russians showed a new face of Warfare in Ukraine and Syria. The Gerasimov Doctrine is here to stay. Similarly the Iranians, under extreme economic pressure, are showing how the proxy forces, innovative use of weapon systems, non-attributability etc. can be used in a modern day warfare. Though no new terminology has yet been coined for this kind of warfare unfolding in Saudi Arabia and gulf region, this type of warfare demands a very careful study.

There is tremendous tension between U.S. and Iran because of U.S. withdrawal from the JCPOA and imposition of economic sanctions. Iran is a regional power. Its conventional capabilities are weak compared to the U.S. and NATO countries. But they are considered militarily stronger than the other Arab countries in the region. Iran could conduct a calculated attack, not directly against the U.S, but an asymmetric, irregular attack against Saudi Arabia, and the U.S. could well think of a conventional response. The rules of the game are different; the only rule of future warfare apparently is that there are no rules.

Iran wanted to send a very clear message. It is smart enough to understand that any direct or indirect military action at U.S. military bases or maritime vessels in the region would have invited immediate military response from the U.S. military. But attack on the Saudis, their oil infrastructure in particular, can inflict pain. The Iranians recognize that the attack on the Saudis made any response from the U.S. much more complicated. Iran delivered the message across.¹The attack by unmanned combat aerial vehicles (UCAV) and cruise missiles on Saudi Arabia may be a pointer to another revolution in military affairs as a result of advances in military technology, tactics and war fighting. The attack shows that strategic threat from inexpensive conventionally armed weapons can be serious and effective. Nation

states tend to underestimate the capabilities of proxies and non-state actors. Technologies that matter for future war are mostly simple adaptations from the hardware available in civilian market and not confined to the extravagant, extremely expensive systems that nations procure. The Houthis' Quds 1 drone costs much less than the \$100 million-plus F-35 or the \$15 billion Ford-class aircraft carrier.

Analysts have been warning about these shifts in the character of war for years, but the recent strikes on Saudi Arabia have made it clear that these are at least a limited reality now. The U.S. still has a vast superiority in precision strike and C4ISR capability, but it is already confronted with the issue of how does it actually use it? U.S. is thus grappling with the following issues:-

- Who and what in any given case will be the target?
- How far will the U.S. be willing to escalate?
- Who are America's real and trustworthy strategic partners. How does the U.S. cooperate with them?
- How far is the U.S. willing to risk involvement in a major new war?
- What new forces will be needed to arm U.S. forces to deter and defend and to equip its strategic partners?²

Drone swarms, stealth drones, 'suicide' drones, hijacking drones, dog-fighting drones, whatever, are already here to stay. Warfare is changing possibly more toward drones, autonomous systems, cyber, space and hypersonic missiles. Adversaries, terrorist networks and non-state actors would have taken notice of the impact as well as media coverage of this attack. They are likely trying to put together their own version

of this kind of attack to shut down a nation's commercial airline or any number of other targets. The use of military forces to shape political and diplomatic outcomes without fighting is as old as history. As Sun Tzu points out, "For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill". Modern theories of deterrence seek to limit and contain rather than subdue. The same is true of limited wars that usually lead to limited victories.

That does not mean that the size, organisation and capability of military forces, tactics and strategy are any less important, but these need to be kept updated in careful perspective. After all, there is nothing new about the impact of non-state actors, supporting roles by outside powers, and mixing terrorism with asymmetric warfare - only the processes have proliferated.

Iran's Way of Warfare

The U.S. military assets in the Persian Gulf region have gone from being an intimidating tool of American coercion to a strategic vulnerability. The idea of using economic and military power to bring Iran and its allies to heel in favour of a U.S.-backed regional security architecture seems to have failed. The U.S. has the option to go to war or sue for peace but the middle path involving the U.S. applying pressure from a distance is not working. Effectiveness of Iran's asymmetric military strategy does not get the attention it deserves. It is often said that Iran's military doctrine is merely defensive. However, despite Iran's conventional military power being relatively weak, it has become a front line regional power in the last two decades due to its growing offensive asymmetric capabilities which incorporate asymmetric land,

naval and air assets such as armed militias, cyber capabilities and drones. Mohammed Alyahya, editor in chief of the English website of the Saudi-owned news channel Al Arabiya, emphasized the importance of deliberate action. He said, “A conventional military response must only be embarked upon with the utmost care in terms of the legality and consequences, after looking at all the other alternatives. If there is a military conflict, Iran will inevitably be the biggest loser, but the reality is that everybody will lose. A conventional war will take its toll on everyone.”

Despite the increase in U.S.-Iranian tensions, Iran has adopted a calibrated approach to targeting critical infrastructure in Saudi Arabia and other Gulf countries. Rather than using significant direct force Iran has focused on irregular strategies and tactics such as conducting cyber operations, harassing tankers and supporting attacks from proxy forces like the Houthis. Iran wants to limit military escalation and prevent inter-state war. But there is always a possibility that Iran, the U. S., or some other countries could escalate the current conflict through miscalculation or even deliberate actions.

Use of Proxies. Iran can impose damage to its adversaries while hiding its role through its proxies such as Assad regime, Hezbollah in Lebanon, Shiite militias in Iraq and Houthis in Yemen. The adversaries’ response options thus get restricted. It might seem intuitive to simply declare Iran responsible and satisfy by retaliating against it directly. International law makes it difficult to build the international consensus necessary for the legitimacy for any retaliation actions. Without some solid proof that Iran ordered or participated in the attacks, it is difficult for Saudi Arabia or the U.S. to hold Iran legally accountable.

Evidence of September attack originating from Iraq has further complicated the issue. These recent attacks threaten to drag even more parties into the conflict. If the attacks originated in Iraq, the Iraqi government will be forced to choose between the following uneasy options:-

- Take larger and potentially destabilizing steps to rein in the militias.
- Risking attacks or other coercive measures by external actors by trying to curb Iran's influence.

The most dangerous aspect is Iran's transfer of drones or cruise missile or the technologies to its proxies. Iran has been using Syria, Iraq, Lebanon and Yemen as a testing ground for its drones against countries such as the U.S, Israel, Saudi Arabia and others. The proxies are becoming more familiar with this technology. With small, cheap and relatively primitive drones, Iran and its proxies have demonstrated that they are able to execute increasingly sophisticated asymmetric operations that pose a security threat and inflict a lot of damage to their adversaries. Use of Proxy is not new and has been a feature of international relations for a very long time. States will use proxies as long as they reduce the costs and risks of force - and international law and norms do not discourage their abuse. With the availability of advanced technology at very low cost it is expected that proxies will stage increasing numbers of globally destabilizing events like the attack on the Saudi oil facilities.³

Non-Attributability. Like some of the recent tanker attacks, it may never be possible to prove beyond any doubt as to who was responsible for the attacks. This is a further warning about the longer-term risks involved. The Iranians can claim that the Houthis did it even if they had supplied the weapons and training to the Houthis as the decision

to attack and implementation were those of the latter. This is a low cost, low risk way to inflict serious damage.

Innovative Use of Weapon Systems. The U.S. Director of National Intelligence's January 29, 2019 worldwide threat assessment stated that Iran "continues to develop and improve a range of new military capabilities to target U.S. and allied military assets in the region, including armed UAVs, ballistic missiles, advanced naval mines, unmanned explosive boats, submarines and advanced torpedoes, and anti-ship and land-attack cruise missiles." The armed drone or UAV are in use for a long time. It was used extensively for the global war against terror. But the ball game changed when less advanced countries or proxies or non-state actors started using these offensively against far more technologically advanced countries in unequal struggles in the Middle East region.⁴

Use of Drones. UCAV/RPVs and cruise missile attacks offer precision strike options with high levels of accuracy from small, easily dispersible systems that are very hard to locate and target. Iranian systems have both GPS and imagery capability to home in even more precisely on a target. UCAV/RPVs and cruise missiles are also small air defense targets compared to fighters, can fly evasively and have flight profiles that are hard to detect. The advantages are:-

- Only a small handful of air defense systems - like the Russian 9K331-Tor-M1-SA-15 Gauntlets supplied to Iran - are intended to deal with this kind of threat.
- Advanced, low flying UCAV and cruise missiles that can fly complex, long-range profiles.
- The method of 'hugging' the ground with terrain avoidance systems can evade radar and other forms of detection.

- The ability to home-in remotely with great precision on key point targets that can include the most expensive fixed industrial, infrastructure and military targets.
- Use of comparatively small amounts of explosives to destroy key components.

Iranian asymmetric warfare thinking has found several advantages in use of drones. These are:-

- Drones are relatively cheap, not complicated, safe as they are unmanned and can be operated from a far distance.
- It can easily defy territorial boundaries to conduct intelligence, reconnaissance, surveillance missions.
- Can launch offensive attacks.
- Can project power outside Iran's boundaries.

If extremists, terrorists and insurgents, non-state actors or proxies acquire relatively short range UCAVs, they have the potential ability to do critical damage. Such delivery systems can be very hard to detect and almost impossible to defend against. Any response can lead to counterattacks and an open-ended escalation ladder. This is cheap. The Saudis are using fixed wing, multimillion dollar aircraft to take down backyard drones that are coming across the border. Any cost benefit analysis will show it is not sustainable.⁵ Iran has now demonstrated, cruise missiles and UCAVs can also be used to counter or supplement economic warfare and deal with sanctions. The ability to escalate in some military ways is not producing some new form of mutually assured destruction. It is integrating political, economic and armed warfare.

U.S. sanctions interrupted Iran's drone program several times, but could not stop it. Iran managed to circumvent these sanctions and smuggle key components necessary to manufacture drones from several countries such as Germany, France, the U.S. and others. Iran faced a lot of challenges mostly related to creating the adequate communication infrastructure to control UAVs and arming the drones with air to ground missiles. Retired Vice Admiral Joe Sestak, now a politician and a presidential candidate, expressed concern about the lethality of Iran's asymmetric and deterrent capacity in a direct engagement and the operational consequences of a direct U.S. attack on Iran. He said, "U.S. carriers could not survive long in the Persian Gulf due to stealth mini-submarines, mines and proximity to Iranian missile batteries. We would be forced to operate from the open sea, slowing down our operations." Rear Admiral Hossein Khanzadi, the head of Iran's navy, claims that Iran's drones are watching every U.S. ship in the region. He said, "Our drones have significant ranges and have no limitations in communication links. We have a complete archive of images of American vessels approaching from very far distances ... an immense archive of the day to day and even moment to moment movements of American forces, whether in the Persian Gulf or Oman sea." This suggests that Iran had been able to overcome the problems regarding communications infrastructure. It is believed that the drones are becoming more integrated in Iran's military doctrine to carry out offensive attacks.

Use of UCAVs and cruise missiles is opening up new possibilities of their use. UCAVs and cruise missiles can be used with conventional forms of airpower and land warfare. These can also be used to deter post-strike retaliation against such strikes. These additional new strike capabilities present major challenges to existing forces, strike tactics and strike technology.

Targeting. The UCAV and cruise systems that were used in the attack require some infrastructure in terms of targeting and battle management system. Nation states normally have a good idea of its major opponent's critical infrastructure, industrial base and military facilities. Aspects of terrain mapping for low altitude flight no longer require the advanced data mapping systems in given areas. Getting GPS coordinates down to an actual GPS and imagery measurement on a key component in a complex system can be done by any passing worker with open source commercially available software. The target need not have to be military. It can be an oil production and export infrastructure, a key link in a national communications system in a power grid, supervisory control and data acquisition (SCADA) systems, a stock exchange, a water desalination plants or critical urban sanitary facility or a stress point on a bridge.

Iran could have struck military targets, or major civilian centers and inflicted major casualties. But, it only struck a processing plant at the time of the week when the facility's staffing levels would be lowest and farthest from the processing lines. This is an indication that Iran does not want war. Iran is looking to inflict pain but without the bitterness of death. Iran's swarming tactics and irregular capabilities suggest that it will continue to threaten critical infrastructure targets transiting through strategic waterways like the Strait of Hormuz and Bab el-Mandeb Strait.

Vulnerability of U.S. Weapon Systems

Justifiably, questions are being raised how could Saudi Arabia, the world's biggest importer of military hardware and possessing six battalions of U.S.-built Patriot missile-defense systems, fail to defend the heart

of the oil industry on which the kingdom depends? The credibility of U.S. anti-missile capabilities is under critical scrutiny. For Saudi Arabia and U.S. the fact that a tribal force like the Houthis could reach into their territory and engage in this kind of tactical action is militarily embarrassing and practically discrediting.

The central concern is that these drones penetrated a sensitive area, one that is about hundred kilometers from U.S. naval facilities in Bahrain. That means the flight path of the drones or warheads that struck the oil facility could have been within range of air-defense radar based in the Gulf. The U.S. has a variety of bases in the Middle East, including Al Udeid Air Base in Qatar, Al Dhafra Air Base in the UAE, the Fifth Fleet infrastructure in Bahrain, and various sites in Kuwait. The U.S. deployed F-22 jets to Al Udeid Air Base in June. A 2017 report noted that the U.S. Combined Air Operations Center at the Al Udeid Air Base has a “dizzying amount of data and intelligence” flowing from sources such as drones and radar throughout the Middle East. The



The Patriot surface-to-air missile system

version of the RQ-4 Global Hawk that was shot down in June near Iran's shoreline was based at Al Dhafra Air Base. The USS Boxer, which is part of the Fifth Fleet operations, downed an Iranian drone in July.

The attacking drones or cruise missiles were able to fly into some of the most well defended or at least the most secure airspace in the world. This is airspace that covers numerous small countries, shipping lanes for oil and oil infrastructure. Fawaz A. Gerges, professor of Middle Eastern politics at the London School of Economics said, "What amazes me is, what happened to the American anti-missile systems? This reflects terribly on the U.S. and its defense systems. The Iranians know this now and the lessons learned here will be applied in Syria, Lebanon and others areas in the future."

S-400 Capabilities. Saudi Arabia has been in talks to acquire the same S-400 advanced air-defense system that Turkey recently bought from Russia. The Russian weapon, though little tested in combat, has technical advantages over U.S. Patriots. It has a range of 400 kilometers (250 miles), versus the Patriot's 160 kilometers, can destroy targets moving twice as fast and can be mounted for action in five minutes, compared with an hour for a Patriot battery.

Russia pairs its S-400s with the smaller Pantsir-S1 system to handle low flying and short range missiles that would slip past the larger ballistic missile defense system. Though Russia has deployed S-400s in northwestern Syria, it has used the Pantsir system to counter drone strikes. Justin Bronk, research fellow for air power and technology at the U.K.'s Royal United Services Institute, said, "Ideally, the Saudis need layered defenses, including short range point defense systems like the German Skyshield or Russian Pantsir to allow rapid engagements of small threats with cheaper systems than the massively expensive



S-400 Missile

Patriot.” Purchasing more of these systems is no solution. S-400s is not the answer for all air defence requirement. In Syria Iranian backed forces have been repeatedly hit by Israel, Islamic State drones regularly strike Russian sites at Hmeimim Air Base. Russian mercenaries in Deir al-Zour have been pulverized by U.S. air power in February 2018.⁷

Air defences can cope with attacks by UCAV and cruise missile only to some degree. It is expensive and difficult to maintain any major air and missile defense of large areas. The capability of air combat systems like the AWACs airborne radar systems in the U.S. and Saudi Air Forces, and advanced air defense fighters like the F-15S and F-22, to detect and intercept such systems over wide areas and flying complex attack profiles at low altitudes are unclear. The same is true of the operational capability of most major land based surface to air missiles like the SA-3, IHawk, Patriot, S300 and S400. Deploying large numbers of Shorter Range Air Defence Systems or SHORADs such as the Russian 9K331, advanced versions of systems like the French Crotale and radar guided guns may help. But this would mean deployment of massive numbers

of special purpose systems tied to the defense of a given site. Even the best defenses will also be vulnerable to stealth and saturation.

Efforts to take down Iranian drones in the region can be characterized as being random and reactive. Most Iranian made drones used in the Middle East by several countries were shot down either by jets or by air defense missile systems. Shooting down such drones with a missile that can cost around \$3 million is not a sustainable equation in terms of cost efficiency. Iran would love to lock his adversaries in such an equation for a long period of time.⁸ The area coverage of all such systems clearly declines sharply in dealing with UCAVs and cruise missiles at low altitudes, even if they lack any aspect of stealth. Stealth is far less secret now than it was in the past. On the other hand, the notion that Iran fired cruise missiles from across the Persian Gulf may actually be more embarrassing for the U.S. Experts in Washington have long held that Iranian missile accuracy is so poor that it would have little military application. If it is the Iranian cruise missiles that flew across the militarized Persian Gulf and evaded both Saudi and American sensors and air defenses to hit an oil facility, then how much safer are U.S. forces in the region?

The Changing Role of Outside Powers

Outside powers are playing increasing roles that may lead them to become involved in future conflicts. Russia has reasserted its military role in Syria and the Mediterranean and is likely to become more active in the Middle East and North Africa (MENA) region if it sees the opportunity. China has acquired basing rights in Djibouti, deployed ships as part of the anti-piracy force in the Indian Ocean and Gulf of Aden, and may acquire access to ports in Pakistan. Outside powers

have also played a major role in reshaping the capability to fight future conflicts through arms sales. A recent Congressional Research Service (CRS) study showed that Saudi Arabia alone purchased U.S. \$86 billion worth of arms between 2007 and 2014. The U.S. signed new arms sales agreements with nations in the Near East worth some U.S. \$134 billion between 2007 and 2014. The arms sales of prominent arms exporters during the same period are:-

- Russia U.S. \$29.3 billion.
- China U.S. \$4.9 billion.
- Major European powers (UK, France, Germany, Italy) \$49 billion.
- Other states U.S. \$19.3 billion.

These purchases were driven largely by the fighting in Syria and Iraq, and the growing tension between Iran and its Arab neighbors.⁹

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Chapter 10

India's Concerns

Oil Dependency

Crude oil is still a critical driver of the world economy. Oil price changes have significant impacts on economic growth, development and welfare in countries around the world. China's oil consumption stood at 12.79 mbd in 2017, accounting for about 13 percent of the world's total oil consumption.

World's Biggest Oil Importers (2018 data)

Country	(\$ billion)	Percent of total crude input
China	239.2	20
U.S.	163.1	13.8
India	114.5	9.7
Japan	80.6	6.8
South Korea	80.4	6.8

Together, these five countries consume over 45 million barrels of oil every day. Thus, only five nations account for more than 46 percent of global oil consumption.

Decline in oil consumption and the increased use of renewables had begun to ease demand pressures in the world oil market. The market

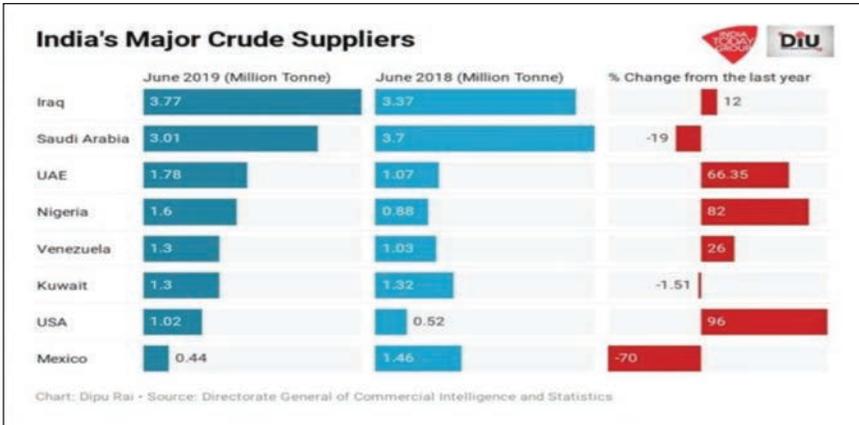
was shifting from being a sellers' market into becoming a buyers' market. U.S. hostility towards Venezuela and Iran adversely affected the supply side. But the recent attack on Saudi Arabia has intervened to destabilise the market. The countries most hurt are India, China and several developing countries.

Saudi Arabia, the United Arab Emirates, Iraq, Iran and Kuwait are the major oil exporting nations that increasingly sell their oil to Asian economies, including China, India, Japan, Korea and the ASEAN countries. Regime change in Venezuela is also impacting the supply of oil.

World's Biggest Crude Oil Suppliers 2018

Country	\$ billion	Percent of total exports
Saudi Arabia	182.5	16
Russia	129.0	11.4
Iraq	91.7	8.1
Canada	66.9	5.9
UAE	58.4	5.2
Kuwait	51.7	4.6
Iran	50.8	4.5
U.S.	6.3	4.3

India has every reason to worry about escalating geopolitical tensions in West Asia so near to its west coast. India is the world's third largest oil importer. India imports nearly 85 percent of its total crude requirements. She spent \$111.9 billion on oil imports in 2018-19. This is not going to come down. Saudi Arabia is the second-largest supplier of crude oil and cooking gas to India. Saudi Arabia accounted for about 18 percent



India's crude import (2018)

of crude imported in 2018-19. Every dollar increase in the price of oil raises the import bill by around Rs10,700crore annually. Every \$10 increase in the price of a barrel of crude widens India's current account deficit by about 0.4 per cent of gross domestic product.

Iran

India was the second largest purchaser of Iranian crude after China. India imported 27.2 million tons of oil worth \$11.1 billion between 2017-2018. Iran supplied more than a tenth of India's oil needs before the reimposition of U.S. sanctions against Iran supplies. However, the U.S. pressurised India to



stop buying Iranian oil after walking out of the nuclear deal. Iran offered cheaper freight and a 60-day credit period to Indian importers such

as Indian Oil Corporation, Mangalore Refinery and Petrochemicals Limited (MRPL) and Nayara Energy (formerly Essar Oil).

U.S.

India's exports to the U.S., its largest market, touched \$52.4 billion in 2018-19, while imports were to the tune of \$35.5 billion. Its trade surplus with the U.S. has been shrinking in the past two years, as it has stated importing oil and gas from the largest economy, something that India has been highlighting. According to the U.S. Government data, New Delhi's trade surplus with Washington eased to \$21.3 billion in 2018 from \$22.9 billion in 2017. In contrast, China's trade surplus with the U.S. widened further to a record \$419.2 billion last year from \$375.6 billion in 2017, despite the tariff war between the top two economies.¹

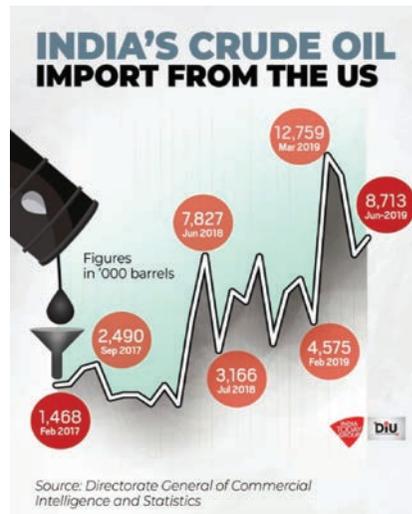
U.S. oil companies are producing record amounts of crude oil in the last five years. According to a report by the BP Statistical Review of World Energy 2019, the global production of crude oil in 2018 grew by a whopping 2.2 mb/d (million barrels per day), more than double its historical average. "The vast majority of this growth was driven by U.S. production, which grew by 2.2 Mb/d - the largest ever annual increase by a single country," the report said.²

India is looking to diversify oil purchases beyond its traditional suppliers in West Asia. India's energy trade with the U.S. is expected to rise by more than 42 percent to \$10 billion in the current financial year as India expands non OPEC energy sources to de-risk oil supplies from the instability of West Asian geopolitics.

Emergence of the U.S. as a major oil supplying nation indicates that it could be the biggest gainer in any disruption in global oil production. Dharmendra Pradhan, Minister for Petroleum & Natural Gas and Steel

at the recent U.S.-India Strategic Partnership Forum's annual leadership summit said, "In 2018-19, (India's) total import of crude oil, LNG (liquefied natural gas) and coking coal stood at \$7.2 billion. In the current fiscal, this may go up to \$10 billion... mounting geopolitical uncertainties, rising U.S. production and India's appetite for energy has created both the need and opportunity for the two countries to lift bilateral energy ties to a new level."

According to data sourced from the Directorate General of Commercial Intelligence and Statistics, the U.S. supplied about 4.5 million tonnes of crude oil during April to August 2019, as compared to 2.6 million tonnes oil sourced from that country in the same period a year back. Greater tension and volatility in the Straits of Hormuz should make American crude more attractive in the short-to-medium term from an Indian perspective.³



The narrowing of the price differential between the international crude oil benchmark Brent and Dubai crude has made U.S. oil more competitive even after higher transportation charges. A discount of \$ 2-4 per barrel on American oil over Dubai crude would make it cover freight costs. U.S. could consider offering concessions oil exports on par with the terms India enjoyed with Iran. Transportation cost is an issue to bring oil from the U.S.⁴

The shift to the U.S. would not be sudden as gas transportation company Gas Authority of India (GAIL), oil marketing firm Bharat Petroleum Corporation Ltd (BPCL), and the country's largest oil refiner Indian Oil Corporation have sealed deals for supplies of U.S. crude earlier as well. The shale oil price there now has also become very competitive in comparison to Middle-East and Gulf crude. The U.S. had signed a strategic energy partnership agreement with India in 2016 envisaging supporting each other's energy sectors and securing a major market for its Liquefied Natural Gas (LNG). Strengthening of energy ties with the U.S. is part of New Delhi's game plan to reduce its overwhelming dependence on West Asian members of the Organisation of the Petroleum Exporting Countries (OPEC).

It was state-run gas utility GAIL that effectively opened the U.S. energy route for India in 2013 by signing 20-year contract for importing shale gas in ships. Today, the company has contracts for a total 5.8 million tonne of liquefied natural gas from the U.S. The first shipment under that deal reached the Indian shore in 2017. Indian Oil established the viability of U.S. oil for India by bringing a shipment from the spot market.⁵

Russia

India had been looking for sourcing its oil resources from Russia. In 2013, Vankorneft was given the mandate to develop the new fields of Vankor cluster - Suzunskoye, Tagulskoye and Lodochnoye fields, located close to the Vankor field. In 2016, Oil and the Natural Gas Corporation (ONGC) Videsh Ltd (OVL) bought a 15 per cent stake in Vankor, Russia's second biggest oilfield, for \$1.268 billion, followed by another 11 per cent for \$930 million. In the same year, the consortium

of Oil India Limited (OIL)-Indian Oil Corporation (IOC)-Bharat Petro Resources Ltd (BPRL) acquired a 23.9 per cent stake in the field for \$2.02 billion, giving them 6.56 million tonnes of oil. Rosneft holds the remaining 50.1 per cent shares of JSC Vankorneft, the company operating the field with recoverable reserves of 2.5 billion barrels. The OIL-IOC-BPRL consortium purchased another 29.9 per cent stake in a separate Taas-Yuryakh oilfield in East Siberia for \$1.12 billion. Vankor produces about 442,000 barrels of oil per day (4 per cent of Russian crude oil production) while Taas currently produces about 21,000 barrels per day of oil.⁶ These investments will give India 15.18 million tonnes of oil equivalent.

India has sounded Russia for increasing their oil supplies against the backdrop of the drone attacks on the Saudi oil facilities. Rosneft PJSC has agreed to assist India with its energy security efforts. Indian energy companies have so far invested close to \$10 billion in acquiring stakes in hydrocarbon assets in Russia. Vankorneft, a subsidiary of Rosneft, Russia's state-run oil company, is developing the Vankor oil and gas condensate field, situated in the northern part of Eastern Siberia. Dharmendra Pradhan, Minister for Petroleum & Natural Gas and Steel, discussed investment opportunities when he met Igor Sechin, chief executive of Russian oil major Rosneft, in September this year. During the talks, the two sides reviewed existing stake of Indian firms in Russian oilfields such as Sakhalin-1, Taas-Yuryakh and Vankor fields in Far East region of the former Soviet Republic. In the presence of Minister Pradhan, the Indian consortium of four oil and gas Public Sector Undertakings (PSU) (BPRL, IOC, OVL and OIL) and Rosneft exchanged a non-binding cooperation agreement, reiterating their interest in participation of the Indian companies in the Eastern Cluster project of Russia, India already imports a small quantity of oil from

Russia, but is looking to raise it through a new sea navigation channel between Vladivostok and Chennai. During the meeting with Sechin, who Indians see as Mukesh Ambani of Russia, Pradhan renewed pitch for a consortium of Indian companies led by OVL taking about 49 per cent stake in Russia's Vankor cluster oilfields. OVL, the overseas arm of state-owned (ONGC), may hold 26 per cent stake in Suzunskoye, Tagulskoye and Lodochnoye fields - collectively known as Vankor cluster, while IOC, OIL and BPRL (a unit of Bharat Petroleum Corp Ltd or BPCL) would hold another 23 per cent. Rosneft, Russia's national oil company that owns the fields, wants to retain a majority stake and is keen to sell only up to 49.9 per cent stake.⁷

What India Is Doing

In the last seven years, India has been on the lookout for sourcing its hydrocarbon requirements from diverse resources and not putting the eggs in one basket. India reduced the Middle East's share in its total oil imports to about 56 percent in July this year from around 60 percent a year ago, while increasing its share of imports from Africa and the U.S. After the U.S. imposed sanctions on Iran, India has ceased to import crude oil from the Iran from May this year. At the same time, USA's crude oil supply to India has jumped 96 per cent in a year as per data of the Directorate General of Commercial Intelligence and Statistics (DGCIS). The impact on prices notwithstanding, India's fuel supply is unlikely to be hit, at least not for now. Currently, India has a capacity to meet about 12 days of the country's crude oil requirement. The Vishakhapatnam cavern has a storage capacity of 1.33 MT, Mangaluru (1.5 MT), and Padur (2.5 MT). Indian refiners maintain 65 days of crude storage, and when added to the storage planned and achieved by Indian Strategic Petrol Reserves (ISPRL), that takes the Indian crude

storage tally to 87 days. ISPRIL is the firm responsible for maintaining the country's strategic petroleum reserves.

Alexander Neill, a Shangri-La Dialogue senior fellow for Asia-Pacific Security at the International Institute for Strategic Studies in Singapore said, "Over the long term, the current crisis may steer Japan, South Korea and India more toward China's model of building strategic infrastructure around the globe to ensure steady energy supplies. China will be arguing that the U.S. is a fickle, unreliable partner who strikes up unrest and instability in a key strategic region, and the Chinese narrative will be that if you strive to align yourself with the U.S., you'll be associated with that. If you're in a cabinet office in any one of these countries in Northeast Asia, you're going to think about diversification. This is exactly the sort of contingency that China will say it's been strategically hedging by creating this sort of infrastructure."⁸

Recommendations

MENA region is extremely important for India. India's eight Million Diaspora live here, send remittances, 80 Percent of oil imports come from this region. India with its geographical location, stakes, importance and good relations with all must initiate a peace process to resolve the issues. At its worst it may fail, still it would be better than taking no initiative at all. If Japan, who has hardly any influence in this region, can take action to start a peace process why not India?

India should invest more aggressively on foreign oil and gas fields. She should consider investment in Sudan, Venezuela, Syria, and on shale oil in U.S. and Canada. However, international crude prices are the same. Getting access abroad is a commercial venture. If there is a serious shortage no country will allow oil to go out of that country.

India must improve its domestic oil production. India's dependence on imported oil is steadily growing as the domestic oil output remains downward since 2015-16. India's crude oil production in 2018-19 dropped to 34 million tonnes from 36.9 million tonnes in 2015-16.

India should cut down its oil consumption. This can be done by:-

- Vastly increasing the use of electric transport system, including a large systematic expansion of the metro railway networks in all of India's large cities.
- Making the use of private cars and public parking system highly expensive as it exists in oil-starved Singapore for many years.

India may invite China in an oil diplomacy to force lower global oil prices. The two countries together account for almost 18 percent of world oil consumption. The market giants could establish a bilateral agreement that would give the two nations the necessary clout to reduce the cost of oil from OPEC members. They may also include Asian countries like Japan and South Korea also.

India should stop relying so heavily on fossil fuels and shift investment toward the development of renewable energies. India is already a significant developer of new technologies.

The SPRL will have to increase the capacity of strategic reserve from the current 5.33 million tons (actually holding is only 55 percent of it) which is just about 12-16 days of the requirement, to minimum 45 days.

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Chapter 11

Conclusion

The Middle East has become the world's most polarized region. With weak state structures, powerful non state actors and multiple transitions occurring almost simultaneously the Middle East has become the world's most volatile region. Both Saudi Arabia and Iran exploit the Shiite-Sunni rift to mobilize their respective constituencies. There is a tug of war for regional influence unfolding in Iraq, Lebanon, Syria, Yemen and the Gulf states. There is the Sunni-Sunni rift, with Egypt, Saudi Arabia, and the UAE vying with Qatar and Turkey. Under the apparent calm in the Gulf region as on end October 2019 there is simmering tension there. The situation can escalate any time with some new developments.

Though investigation on as to who was responsible for September 14 attack was being carried out by the UN, the U.S. and Saudi Arabia, even after two months it is not clear who was responsible for the attack. U.S. knows that the 12 conditions for starting any talk with Iran cannot be met by Iran. In the run-up to U.S Presidential elections, President Donald Trump would not like to get into any military conflict with Iran. Iran is also under extreme stress economically due to sanctions imposed by U.S. Both sides will like the talk to start. Will U.S. reduce the effects of sanction? Iran has already indicated informally what they want. The U.S. needs to clearly signal to Iran a way out of the current

conflict. Iran may eventually agree to a nuclear deal in exchange for sanctions relief. Iran will not end its support to partner forces like Lebanese Hezbollah in the region, but it may be willing to help seek a political solution to the Yemen conflict and curb its support to the Houthis.

Under extreme economic stress, Iran will not hesitate to up the ante as its very survival would be in danger. By not attacking a military installation Iran has shown its capability and also willingness for scaling down. Iran is pushing the envelope smartly. U.S is also playing the game with nuanced responses. It has not taken any military initiative. The U.S. may broker a comprehensive settlement where all the stake holders get something but nobody gets everything. It may look like:-

Iran:

- Most sanctions on the sale of oil Iran is lifted.
- Iran stops hostile acts aimed at Saudi Arabia.
- Iran largely withdraws from Syria where the Assad government is supported by Russia and Iran.
- Iran pushes the Houthis to accept a deal to end the fighting in Yemen.

Saudi Arabia:

- Iranian threats to the Saudis end.
- End of the war they have lost in Yemen.
- Get the regional stability.
- Saudis cease exporting Salafism through their funding of extremist schools and organizations throughout the region.

Attacks on Iran backed forces in Syria and oil tankers without attribution also are indicators that Iran cannot go unpunished. Results of the cyber attacks are not known in open domain. But the Iranians would know. A game of high brinkmanship is going on. Nobody knows who will blink first or pull the trigger first. A world body like the UN must take the initiative and resolve the potentially explosive situation in the region.

India has to remain sensitive to the happenings in the Gulf region. It should take some peace initiative. Indian Armed Forces should take note of the utilization of drones and emergence of asymmetric warfare capabilities using drones. China is already the biggest manufacturers of drones. It has shown its ability to attack by swarm of drones. There are reports of Pakistan using drones to drop weapons to terrorists in Punjab. What is our capability to thwart these threats? How do we confront unconventional warfare with conventional forces?

As the Chinese say, we are in interesting times!

The attack on Saudi oil installations has large scale implications for the hydrocarbon supply to the world specially for countries like China, India and the Asian giants of Japan and South Korea. The Strait of Hormuz becomes critical for energy imports of these countries.

The Middle East has become the world's most polarized region. Both Saudi Arabia and Iran exploit the Shiite-Sunni rift to mobilize their respective constituencies. Iran's military strategy is to keep tensions at a low level and avoid a direct confrontation with the U.S. Even if neither side wants to fight a war it could still happen due to miscalculation and missed signals. A minor clash can lead to a regional conflagration with devastating effects for Iran, the U.S. and the Middle East.

India has to remain sensitive to the happenings in the Gulf region. India spent \$111.9 billion on oil imports in 2018-19. Saudi Arabia is the second-largest supplier of crude oil and cooking gas to India. Every dollar increase in the price of oil raises the import bill by around Rs10,700 crore annually.

This Monograph tries to provide how the attack took place, its effect on world economy and oil market, effects on various stake holding countries and their reactions, military implications and India's concerns..



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