Saudi-led air operations in Yemen have badly lost their way, neither achieving their objectives nor respecting international norms.

Part 1 of this PolicyWatch discussed the recapture of Aden (http://www.washingtoninstitute.org/policy-analysis/view/the-saudi-uae-war-effort-in-yemen-part-1-operation-golden-arrow-in-aden), highlighting a key success of the Saudi-led, U.S.-backed coalition against Houthi rebels and armed supporters of former president Ali Saleh. Yet other aspects of the coalition effort have been far less satisfactory, particularly the level of collateral damage being inflicted by the air campaign. If steps are not taken to correct these flaws, many more civilians might be killed, and the Houthis and their patron Iran could reap considerable propaganda benefits.

**OPERATION DECISIVE STORM**

Saudi-led air operations against the Houthis began after Yemeni president Abdu Rabu Mansour Hadi’s March 24 request for military intervention "based on the principle of self-defense in Article 51 of the Charter of the United Nations," as well as "the Charter of the Arab League and the treaty of joint Arab defense." On March 26, the air forces of Saudi Arabia, the United Arab Emirates, Jordan, Kuwait, Bahrain, and Qatar launched Operation Decisive Storm. Since then, around 170 strike aircraft have participated in the campaign, including 100 from Saudi Arabia (mostly F-15S and Eurofighter Typhoon aircraft), 30 from the UAE (F-16s and Mirage 2000s), and several F-16s from Bahrain (15), Jordan (6), and Morocco (6).
This first phase of the operation lasted twenty-nine days and saw coalition air forces work their way through military, political, and infrastructure targets with little apparent connection to an overall war strategy. Air bases and air defense complexes were prioritized to gain air supremacy and freedom to undertake aerial refueling and reconnaissance missions in or near Yemeni airspace. The country's fleet of long-range surface-to-surface missile (SSM) systems were targeted at their bases and known launch sites. Efforts were also made to isolate Houthi-controlled areas from Iranian resupply by disabling airports and Red Sea ports such as Hodeida and Mokha. Other strikes focused on Houthi troop concentrations and leadership locations in the north, close air support along the Saudi-Yemeni border, and Houthi-aligned military camps and arms depots.

By early April, the coalition was trying (and largely failing) to stem the southward flow of Houthi forces by hitting roads, bridges, and gas stations. Fixed targets of real military value were largely exhausted, with new attacks either restriking known targets or hitting suspected gathering places for Houthi and pro-Saleh forces. On April 22, coalition spokesman Brig. Gen. Ahmed Asiri announced the end of Operation Decisive Storm, stating that it "had completed its objectives in Yemen by destroying the ballistic missile capabilities of the Houthi movement and Houthi-allied military units."

**FOLLOW-ON AIR OPERATIONS**

Despite that pronouncement, the coalition never really ceased air operations. Instead, the campaign escalated and became more brutal from late April onward, becoming a tit-for-tat cycle of retaliation. Aside from border clashes and restrikes on military camps, many of which appeared to be empty, three new themes have become dominant in air targeting:

- **Coercive strikes.** The coalition has struck a range of Saleh-associated leadership and military locations in an effort to pressure the former president's Afaash clan to detach from the Houthis -- a strategy that may be registering partial success. Military bases have often been struck immediately after their personnel defected to the Houthis; for instance, on July 7, al-Abr Base was struck and thirty soldiers from the army's 23rd Brigade were killed as soon as they declared for the Houthis.

- **Retaliatory operations.** One of the more problematic aspects of the air campaign has been apparent targeting of civilian areas and infrastructure in Saada, the Houthi home province. This accelerated in tandem with Houthi attacks on border forts in Saudi Arabia's Jizan and Najran provinces from early May onward. On May 7, the coalition began warning Saada residents by leaflet to leave the area. By May 17, UN satellite analysis indicated that a total of 1,171 structures in Saada city had been damaged or destroyed by airstrikes (for more on the civilian toll, see the next section). The Houthis have matched the coalition blow for blow: their long-range rocket artillery strikes and cross-border raids into Saudi Arabia have grown more powerful since late May, utilizing BM-21 and BM-27 multiple rocket launchers and advanced Iranian-supplied antitank systems such as the Metis-M, Kornet-E, and RPG-29.

- **Scud hunting.** The initial phase of Operation Decisive Storm clearly did not eliminate all Yemeni SSMs. On June 6, at least one Scud C variant (a North-Korean Hwasong-6 delivered to Yemen in 2002) was fired at the Saudi military city in Khamis Mushait. Yemen originally had twenty-five Hwasong-6s and many shorter-range FROG rockets; in all, anywhere from four to twenty of these SSMs have been fired into the kingdom. The Hwasong-6 can reach up to 500 kilometers inside Saudi territory and carry a 770 kg high-explosive warhead; it can also be made mobile via transporter erector launchers (TELs). As the U.S.-led coalition learned in 1991 during its famous Scud hunt in Iraq, mobile TELs are very difficult to find. No Yemeni SSMs have been confirmed destroyed prior to launch; coalition airstrikes have only hit fixed sites associated with these missiles.

**HEAVY COLLATERAL DAMAGE**
To Western eyes accustomed to modern air campaigns aimed at minimizing civilian deaths, the level of collateral damage in the Yemen campaign is staggering. To date, collated figures from daily press reporting suggest that between 4,200 and 5,500 civilians have been killed by air attacks. And the tallies from generally reputable observers such as Human Rights Watch, Amnesty International, and the UN suggest an average of forty civilian deaths per day, or around 4,000 total since late April. The highest reported death toll in a single day was 176 on July 6.

Although the coalition has used a large number of precision-guided munitions, a May 3 Human Rights Watch report indicated that it is also using unguided bombs and cluster munitions, even within urban areas. Similarly, Amnesty International has documented the use of 2,000-pound bombs in dense urban areas to strike the unoccupied houses of senior Saleh clan members, causing untold civilian deaths. Other targeting choices have drawn criticism as well. According to Human Rights Watch, sixty-five civilians were killed at worker housing near the Mokha Steam Power Plant on July 24, when a coalition airstrike hit the Red Sea port town with no apparent military rationale -- the monitoring group claimed that no armed forces were present at the plant nor even at an abandoned air defense site 800 meters away. In addition, mounting evidence appears to show that power stations and factories have been deliberately targeted to degrade civilian living standards in Houthi areas.

Yemen’s cultural heritage is also under fire as coalition air forces strike at military and civilian targets near historic locations. UNESCO World Heritage sites such as the Old City of Zabid, al-Qahira Castle, and historic central Saada have been hit repeatedly, as have the old quarters of Sana, al-Mukalla, and Taizz. Elsewhere, the National Museum in Dhamar and the Yemen Heritage Centre in Aden have been destroyed, along with large numbers of artifacts from the region.

**POLICY IMPLICATIONS**

The coalition air campaign is a disturbing throwback to the types of operations many countries undertook before the more precision-oriented 1991 Gulf War. Some targeting choices are legitimate efforts at coercion, such as striking pro-Houthi units and the property of Saleh-aligned leaders. Yet collective punishment of civilians also seems to be a conscious focus of the campaign, especially in retaliatory operations following cross-border attacks on Saudi Arabia. The lethal targeting of civilians may not be intentional, but it is the inevitable result of using excessively large munitions or indiscriminate weapons in populated areas. The coalition apparently cannot find the critical targets that actually need to be hit -- enemy leaders, missiles, troop convoys, and mobile artillery systems. As a result, the air campaign spends a lot of time hitting what it can find, not finding what it needs to hit.

The United States has been through these issues in its own air operations over the past few years, moving toward more refined targeting and collateral damage mitigation processes. As the closest partner of the coalition air forces operating over Yemen, the U.S. Air Force should give some tough advice to the campaign planners: namely, that the air war is making the coalition look like the bad guys, giving the Houthis and Tehran a propaganda coup and threatening to besmirch any positive precedent that defeating Iranian-backed forces would generate.

Moreover, the "strategic air campaign" against Saada needs to be much more selective, tied to overall war aims rather than tit-for-tat retaliation. Saudi Arabia may not be able to deter the Houthis by establishing escalation dominance via strikes on their home province; it may instead need assistance with counter-infiltration, counter-artillery, and counter-SSM strikes near the border. The United States might also be able to help pro-government Yemeni forces use airstrikes to push elements of al-Qaeda in the Arabian Peninsula (AQAP) out of bases they have seized. More broadly, Washington can help the coalition cope with the demanding next phase of the air campaign: providing discriminate, effective air support to mobile offensive columns of Yemeni and UAE forces as they push north.
To be sure, the United States hardly has realtime airstrike adjudicators or surveillance assets to spare -- both are in high demand in Iraq, Syria, and Afghanistan. Yet the U.S. Air Force and intelligence community might have U.S.-based target system analysts who could help redesign the joint integrated prioritized target list for the Yemen air war and influence target and weapon selection to minimize collateral damage. Washington will receive at least some of the blame for whatever the Saudi-led coalition does in this war, so the Pentagon may as well be involved in shaping the outcome.

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