

The Iraqi Artillery Threat

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Brief Analysis

Artillery has historically been the principal cause of casualties on the modern battlefield, and Iraq's large, advanced, and diverse inventory of artillery pieces is one of the major strengths of its ground forces. Given Saddam Hussein's strategy of inflicting maximum casualties on U.S. forces, artillery will likely play a central role in Iraqi planning for a ground war. Although, Iraqi artillery will create problems for allied ground forces, the U.S. has the means to ensure that it will not be decisive.

Both Quality and Quantity

Iraq possesses a wide range of tube and rocket artillery systems acquired from a variety of sources, and it also produces a number of systems locally. Its total inventory comprises nearly 4,000 artillery pieces: about 3,000 towed pieces, 500 self-propelled guns, and over 200 rocket artillery launchers, approximately 2,700 pieces of all types are in the Kuwaiti theater, and about 650 have been confirmed destroyed by allied air and artillery. Some of these systems are more modern, and have greater range and capabilities than comparable systems with U.S. forces. Iraq's towed artillery includes about 300 top-of-the line guns -- 200 Austrian GHN-45 and 100 South African G-5 155mm howitzers -- and large numbers of older Soviet and Chinese guns. Its self-propelled artillery includes a mix of high-quality Soviet and Western guns, including captured U.S. M-109 155mm howitzers, the French AUF-1 155mm gun, and Soviet 2S3 152mm and 2S1 122mm howitzers. Iraq produces conventional rounds for all these calibres, as well as 122mm cluster munition rounds. It has also produced prototypes of two selfpropelled howitzers, the 203mm Fao, and the 155mm Majnoon.

Iraq also possesses a large number of locally-produced, long-range rocket artillery systems capable of delivering cluster munitions, including: the Laith, an extended-range derivative of the FROG-7 rocket; the Ababil 100 and Ababil 50 long-range rockets (the latter co-produced with Yugoslavia); and the Sajil family of rockets, (a version of the Brazilian Astros II system). It also has a large number of Soviet multiple rocket launchers (MRLs), including the BM-21 122mm MRL. Due to Iraq's weakness in the air, artillery is likely to be the principal means of delivering chemical agents. Iraq reportedly produces chemical artillery rounds (mustard, sarin, and tabun) in a variety of calibres, including 155mm, 152mm, 130mm, and 122mm. Its annual production of chemical agents was sufficient to produce several hundred thousand chemical rounds a year. Accordingly, it is necessary to assume that major quantities are likely to have survived allied air attack. While impressive in quantity and quality, Iraqi artillery

possesses a number of shortcomings:

- Iraq's heavy reliance on towed artillery raises questions about its survivability and potential effectiveness. Towed artillery crews are exposed and unprotected from a variety of battlefield threats, including air attack, artillery, and small arms. In addition, towed artillery is unable to shoot and move ("shoot and scoot") as rapidly as self-propelled artillery, reducing its ability to evade counterbattery fire, or rapidly relocate on the battlefield in accordance with tactical requirements.
- During the war with Iran, Iraq relied heavily on pre-planned artillery fire and demonstrated an inability to shift fire rapidly when required. It is unlikely, barring any breakthroughs in Iraqi capabilities, that it will be able to employ effectively its artillery against an enemy fighting a fluid, fast-moving war of maneuver. In addition, Iraq's artillery lacks the ability to acquire accurate and timely data concerning targets beyond visual range, or effectively employ forward observers, and thus will not be able to use its long-range artillery with any accuracy.
- Iraq has traditionally employed massed fire, expending enormous quantities of ammunition to saturate large areas of the battlefield -- often achieving limited results. Allied efforts to destroy Iraq's forward ammunition stocks by air attack and prevent effective resupply of its forces in theater, combined with Iraq's inability to manufacture large quantities of ammunition at home or procure ammunition resupply from abroad, should seriously reduce the quantity of ammunition available. Iraq might therefore find that its requirement for ammunition could rapidly outstrip the ability of its logistical system to respond.

The U.S. Response to the Threat

While Iraq has more artillery, with -- in many cases -- greater range than U.S. forces, a simple comparison of Iraqi and U.S. artillery leads to misleading conclusions about the relative capabilities of the two sides. U.S. forces will rely on a combined-arms approach in dealing with Iraqi artillery, integrating air, armor, artillery, and infantry forces to eliminate, or at least reduce the threat. U.S. forces enjoy several advantages in this regard:

- Immensely superior target acquisition capabilities. The J-STARS, TR-1, and OV-10 Bronco aircraft, the Pioneer remotely piloted vehicle, and the ground-based AN/TPQ-37 Firefinder radar are capable of providing real or near real-time data concerning the location of Iraqi artillery.
- Air supremacy, permitting almost total freedom of action over the battlefield. U.S. aircraft -- including attack helicopters -- will provide major assistance to U.S. artillery in the destruction of Iraq's artillery. Indeed, the presumption that the U.S. would always enjoy air superiority is one reason why artillery has never been a high priority for the U.S. Army. U.S. air power will more than compensate for U.S. weaknesses in this area.
- The U.S. Army's Multiple Launch Rocket System (MLRS) provides the ability to hit Iraqi forces, and their supporting artillery, through the depth of their tactical deployment.
- U.S. artillery is highly flexible, and is tied into automated command and control systems which multiply their effectiveness, by enabling them to act rapidly to acquire target data, shift fire, and shoot and move.
- Armored and mechanized ground forces that break through Iraqi lines will quickly overrun Iraqi artillery in many places.

Outlook

While Iraq has an impressive artillery force, it is not likely to be able or allowed to exploit its full potential. Most of its experience during the war with Iran involved the employment of artillery against large, vulnerable massed infantry formations, in a static situation. It has no experience employing artillery against fast-moving armored forces. Nor has Iraqi artillery shown that it has the means to acquire target data beyond visual range. As a result, Iraqi artillery is likely to come into its own only after the fast-moving initial phase of the war is over, in a static war of attrition with

allied forces. Whether Iraq will have significant artillery assets remaining at this point seems unlikely. On the other hand, the advantages offered by U.S. air power -- which can strike at targets throughout the battlefield at will -- and the flexibility and responsiveness of U.S. artillery -- will ensure that the more limited artillery assets of U.S. forces are utilized more effectively. Nonetheless, the massive quantities of Iraqi artillery on the battlefield assure that substantial resources will be expended in dealing with this threat, and that U.S. casualties due to Iraqi artillery may still be high.

Michael Eisenstadt is a research fellow in political-military affairs at The Washington Institute. He is author of the Institute study *The Sword of the Arabs: Iraq's Strategic Weapons* (Policy Paper #21, 1990). ❖

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