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China's Reported Ballistic Missile Sale to Saudi Arabia: Background and Potential Implications

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In early 2014, *Newsweek* reported China sold DF-21* ballistic missiles to Saudi Arabia in 2007.[1] Neither Beijing nor Riyadh confirmed the sale, and Saudi Arabia has not publicly stated it possesses any DF-21 missiles. The reported sale would have been China's first ballistic missile transfer to Saudi Arabia since the late 1980s and China's first ballistic missile export since 1992. The missile deal could indicate a growing willingness in Riyadh to look to China for major weapons purchases. Closer China-Saudi Arabia security relations seem probable given Saudi Arabia's growing ties with China in other areas—particularly energy—and its increasingly strained relationship with its most important security partner, the United States, largely over U.S. policy on Iran and Syria.

China's Reported Ballistic Missile Sale in 2007

According to *Newsweek*, Central Intelligence Agency (CIA) officers accepted China's DF-21 ballistic missile sale to Saudi Arabia following meetings with Royal Saudi Air Force officers during the spring and summer of 2007. Other details of the deal were not reported.[2] Saudi Arabia likely sought to acquire the DF-21 missiles to upgrade its existing conventional deterrent capabilities, which at the time consisted of the DF-3A. Saudi Arabia purchased the DF-3A from China in 1988. The missiles are outdated, highly inaccurate, and have limited mobility.[3] Although the DF-3A used by China's military is designed for nuclear missions, the variant China reportedly sold to Saudi Arabia was modified to carry a conventional payload.

- China's offensive missile force, the Second Artillery, currently deploys up to four DF-21 variants: the DF-21, the DF-21A, the DF-21C, and the DF-21D. The DF-21 and the DF-21A are theater-range nuclear missiles, the DF-21C is a theater-range conventional missile, and the DF-21D is an antiship ballistic missile with a range exceeding 1500 km. All four DF-21 variants are road-mobile and use solid fuel, which increases their survivability and decreases their maintenance costs.

- The *Newsweek* story on the deal did not reveal which DF-21 variant China purportedly sold to Saudi Arabia, but given China's reported modifications to the missile to carry conventional and not nuclear weapons, it was likely an export version of the DF-21 or DF-21A.[4] Dr. Jeffrey Lewis, director of the James Martin Center for Nonproliferation Studies at the Monterey Institute of International Studies, assesses Saudi Arabia could modify the ballistic missile frame to carry a nuclear warhead.[5]

Figure 1: Comparison of the DF-21 to the DF-3A

Missile Type	Year in Service	Range	Accuracy	Nuclear Capability	Configuration	Deployment
DF-21	1991	1,750 km (1,087 mi)	300-400m	Yes	Two-stage, solid fuel	Road mobile
DF-3A	1971	3,000 km (1,864 mi)	1000m	Yes	Single-stage, liquid fuel	Launch pad, limited mobility

Sources: All data is for standard DF-21 and DF-3A ballistic missiles—not the conventional variants sold to Saudi Arabia. Range estimates vary across sources. The data above is from the U.S. National Air and Space Intelligence Center. Missilethreat.com, a George C. Marshall Institute project, estimates the actual DF-3 conventional variants sold to Saudi Arabia have a range of 2,400 km or 1,491 mi. Accuracy is defined as the circular error probability or the expected radius that would contain half of the fired missiles. National Air and Space Intelligence Center, *Ballistic*

* The Dongfeng-21 has a NATO designation of Chinese Surface-to-Surface-5 (CSS-5).

and Cruise Missile Threat, July 11, 2013, p. 17; Missilethreat.com, "DF-21/-21A/-21B/-21C/-21D (CSS-5)." *http://missilethreat.com/missiles/df-21-21a-21b-21c-21d-css-5/*; SinoDefence.com, "DF-21 (CSS) Medium-Range Ballistic Missile." *http://www.sinodefence.com/space/missile/df21.asp*; Missilethreat.com, "DF-3/-3A (CSS-2)." *http://missilethreat.com/missiles/df-3-3a-css-2/?country=china#china*; SinoDefence.com, "DongFeng 3 (CSS-2) Intermediate-Range Ballistic Missile." *http://www.sinodefence.com/strategic/missile/df3.asp*; Federation of American Scientists, "DF-3A / CSS-2." *http://www.fas.org/nuke/guide/china/theater/df-3a.htm*.

The United States reportedly acquiesced to the deal after CIA experts confirmed the missiles were not designed to carry nuclear warheads.[6] U.S. consultation with Riyadh prior to Saudi Arabian arms purchases likely is not unusual; the United States remains Saudi Arabia's most reliable defense partner and still provides most of Saudi Arabia's military equipment.

Past Chinese Arms Sales to Saudi Arabia

The reported 2007 sale would be the first Chinese ballistic missile transfer to Saudi Arabia since 1988, when China sold a conventional variant of its DF-3A nuclear missile to Saudi Arabia for approximately $3 billion to $3.5 billion. The 1988 sale was China's first major weapons transfer to Saudi Arabia; it took place two years before the countries established formal diplomatic relations in 1990. As part of the deal, Beijing reportedly helped build at least two missile bases south of Riyadh and provided People's Liberation Army personnel for maintenance, operations, and training.[7]

The nearly two-decade period (1988 to 2007) without a China-Saudi Arabia arms deal could be attributed to several factors. First, Saudi Arabia's robust security cooperation with the United States likely disincentivized Riyadh from cultivating close ties with Beijing. Second, Saudi Arabian military leaders probably assigned limited value to Chinese arms after purchasing the expensive and ineffective DF-3A equipment.[*] Third, China's long history of defense cooperation with and arms sales to Iran, Saudi Arabia's neighbor and rival, likely limited Riyadh's interest in cooperating with China on arms purchases.

China's Ballistic Missile Exports

Beijing has not exported any complete ballistic missiles since its 1992 deal with Pakistan except for the purported DF-21 sale to Saudi Arabia in 2007.[†]

- After the United States lifted sanctions against Pakistani and Chinese firms in violation of the Missile Technology Control Regime (MTCR)[‡] for agreeing to comply with missile sale restrictions, China delivered 34 DF-11 missiles to Pakistan in 1992.[8] The DF-11 is a short-range (300 km), mobile, solid-fuel ballistic missile that can carry a nuclear or conventional warhead.[9]

[*] Khalid bin Sultan, then commander of the Saudi Air Defense Force, wrote in his memoir that then King Fahd decided against firing DF-3A missiles in response to Iraqi Scuds during the first Gulf War due to their poor accuracy and high risk for civilian casualties. Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.

[†] In 1999, Turkey reportedly licensed B-611 short-range ballistic missile technology from China Precision Machinery Import Export Corporation, Beijing's marketing arm for missile equipment. Sources offer conflicting information on whether China sold complete missiles. Stockholm International Peace Research Institute, "The SIPRI Arms Transfers Database." *http://www.sipri.org/databases/armstransfers*; GlobalSecurity.org, "B-611/BP-12A/Toros/Yildirim." *http://www.globalsecurity.org/military/world/china/b-611.htm*.

[‡] Established in 1987, the MTCR is an informal, voluntary association to curb the proliferation of technology used to deliver weapons of mass destruction capable of delivering 500 kg payloads at least 300 km. MTCR currently consists of 34 countries, including the United States. Missile Technology Control Regime, "The Missile Technology Control Regime." *http://www.mtcr.info/english/*.

- In the late 1980s, China reportedly sold to Iran between 20 and 90 DF-7 missiles and 30 launchers, which were delivered in the early 1990s.[10] Now retired from China's missile force, the DF-7 is a short-range (180 km), mobile, liquid-propellant ballistic missile that carries a conventional warhead.[11]

- In 1988, U.S. officials revealed that China signed an agreement with Syria to export short-range DF-15 missiles worth $200 million. Beijing retracted the deal after U.S. complaints. In a similar incident, China attempted to send Iran 500 DF-11 missiles in 1992, but U.S. pressure again cancelled the deal.[12]

- Chinese firms have proliferated ballistic missile components and technology, most notably to Pakistan, Iran, and North Korea. Though China is not a member of MTCR, Beijing has committed to following MTCR rules. Chinese entities nevertheless continue to export banned missile technology. In February 2013, the U.S. Department of State imposed two-year sanctions on four Chinese entities for their proliferation of ballistic missile components and technology.[13] The Chinese government's level of involvement with these proliferating entities, however, remains unclear.

Implications

Saudi Arabia's reported acquisition of conventional DF-21 ballistic missiles from China provides a modest upgrade to Riyadh's defense capabilities, according to Dr. Lewis. The DF-21 has shorter range but greater accuracy than Saudi Arabia's previously-acquired DF-3A ballistic missiles, making them more useful against "high-value targets in Tehran, like presidential palaces or supreme-leader palaces."[14] The DF-21 is also road-mobile, allowing for improved survivability and faster launch times. Furthermore, the DF-21 uses solid fuel instead of the DF-3A's liquid fuel, increasing portability and service life, while reducing maintenance costs.[15] Nevertheless, Dr. Lewis and others judge the acquisition—if it indeed occurred—has little strategic impact on the region's power balance unless Saudi Arabia modified the DF-21 missiles to carry nuclear weapons (see Figure 1 above; Appendix I).[16]

The reported 2007 sale and subsequent sales suggest China-Saudi Arabia defense cooperation may be on the rise. Several factors, including Saudi Arabia's perception of its own increasingly hostile security environment, growing China-Saudi Arabia energy ties, and rising tensions in the U.S.-Saudi Arabia relationship, could facilitate improved security ties between the two countries.

- In addition to the reported DF-21 transfer, Russian military media sources reported China in April 2014 signed a deal with Saudi Arabia to transfer an unspecified number of Wing Loong (Pterodactyl I) unmanned aerial vehicles.[17] Beijing also transferred three battalions of PLZ-45 155 mm self-propelled howitzers (81 units) to Saudi Arabia in 2008; the deal was worth around $200 million.[18]

- Riyadh's increased regional security concerns likely are contributing to closer China-Saudi Arabia security ties. In recent years, Saudi Arabia's region-leading defense spending[*] and rapid development of its secretive Royal Saudi Strategic Missile Force indicate Riyadh perceives its external security environment has become increasingly dangerous.[19]

[*] The International Institute on Strategic Studies' 2013 estimate of global defense expenditures shows Saudi Arabia as the highest spender in the Middle East and fourth-largest in the world—surpassing the United Kingdom—with an official expenditure of $59.56 billion. As a percentage of GDP, Saudi Arabia's defense spending is about eight percent—among the top countries in the world in 2013. International Institute on Strategic Studies, *The Military Balance 2014* (London, UK: Routledge, February 2014), pp. 486-492.

- China-Saudi Arabia cooperation on energy has grown immensely in recent years. China, which views Saudi Arabia as an indispensible oil supplier necessary to fulfill its growing energy demand, is now Saudi Arabia's second-largest trading partner. In 2009, China surpassed the United States as the top importer of Saudi Arabian oil, and has since increased Saudi Arabian imports to compensate for reduced Iranian oil exports.[20] Given the growing China-Saudi Arabia interdependence in this strategically important sector, it would seem natural for the two countries to enhance security ties as well.

- Saudi Arabia's strained ties with the United States also may be incentivizing Riyadh to expand security relations with China. U.S.-Saudi Arabia tensions in recent years largely have resulted from diverging interests and declining U.S. influence in the Middle East. Riyadh displayed its disagreement over U.S. policy toward Iran and Syria when in October 2013 it rejected a seat on the UN Security Council in an unprecedented move.[21]

Appendix I: Approximate Range of DF-21 Ballistic Missiles in a Theoretical Launch from Saudi Arabia



Sources: GmapGIS; Google Earth. According to Dr. Lewis, DF-21 deployments are likely near newly built Royal Saudi Strategic Missile Force bases at Ad-Dawadmi and Ash Shamli. The DF-21 range in the map above is approximated from between these two bases; notably, Tehran is within range.

[1] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
[2] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
[3] Thomas Woodrow, *The Sino-Saudi Connection* (Jamestown Foundation, October 2002). *http://www.jamestown.org/programs/chinabrief/single/?tx_ttnews%5Btt_news%5D=3532&tx_ttnews%5BbackPid%5D=192&no_cache=1#.U4TstfldWSo*; James A. Russell, "Saudi Arabia in the 21st Century: A New Security Dilemma," *Middle East Policy* 3 (Fall 2005): 68.
[4] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
[5] Jeffrey Lewis, "Why Did Saudi Arabia Buy Chinese Missiles?" *Foreign Policy*, January 30, 2014. *http://www.foreignpolicy.com/articles/2014/01/30/why_did_saudi_arabia_buy_chinese_missiles*.
[6] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
[7] Thomas Woodrow, *The Sino-Saudi Connection* (Jamestown Foundation, October 2002). *http://www.jamestown.org/programs/chinabrief/single/?tx_ttnews%5Btt_news%5D=3532&tx_ttnews%5BbackPid%5D=192&no_cache=1#.U4TstfldWSo*; James A. Russell, "Saudi Arabia in the 21st Century: A New Security Dilemma," *Middle East Policy* 3 (Fall 2005): 68.
[8] Senate Committee on Foreign Relations, *Hearing on Chinese Missile Proliferation*, testimony of Dr. Gordon Oehler, June 11, 1998.
[9] GlobalSecurity.org, "DF-11 [CSS-7], DF-11A," *http://www.globalsecurity.org/wmd/world/china/df-11.htm*.
[10] John W. Garver, *China and Iran: Ancient Partners in a Post-Imperial World* (Seattle, WA: University of Washington Press, 2006), pp. 186-187; Stockholm International Peace Research Institute, "The SIPRI Arms Transfers Database." *http://www.sipri.org/databases/armstransfers*.
[11] GlobalSecurity.org, "DF-7/M-7/8610/CSS-8," *http://www.globalsecurity.org/wmd/world/china/m-7.htm*.
[12] Eric Hyer, "China's Arms Merchants: Profits in Command," *China Quarterly* 132 (December 1992): 1104; John W. Garver, *China and Iran: Ancient Partners in a Post-Imperial World* (Seattle, WA: University of Washington Press, 2006), p. 187.
[13] U.S. Department of State, "Imposition of Nonproliferation Sanctions against Foreign Entities and Individuals," February 11, 2013. *http://www.state.gov/r/pa/prs/ps/2013/02/204013.htm*.
[14] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
[15] Missilethreat.com, "DF-21/-21A/-21B/-21C/-21D (CSS-5)." *http://missilethreat.com/missiles/df-21-21a-21b-21c-21d-css-5/*.
[16] Jeff Stein, "CIA Helped Saudis in Secret Chinese Missile Deal," *Newsweek*, January 30, 2014. *http://www.newsweek.com/exclusive-cia-helped-saudis-chinese-missile-deal-227283*.
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[19] Jeffrey Lewis, "Why Did Saudi Arabia Buy Chinese Missiles?" *Foreign Policy*, January 30, 2014. *http://www.foreignpolicy.com/articles/2014/01/30/why_did_saudi_arabia_buy_chinese_missiles*; Sean O'Connor, "Saudi Ballistic Missile Site Revealed," *IHS Jane's Defense Weekly*, July 10, 2013. *http://www.janes.com/article/24321/saudi-ballistic-missile-site-revealed*.
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