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# PAKISTAN ATTEMPTS TO FORAY INTO 5<sup>TH</sup> - GENERATION FIGHTER MANUFACTURING: LOOKING BEYOND RHETORIC AND AT REALITY

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In Pakistan, the defence industry from embryonic stage has transitioned to a stage where it can limitedly support the Pakistan military in terms of its hardware requirements. Although its overall contribution is probably minor, it is being showcased by the Pakistan media as part of evidence of growing self-reliance in defence production. The evolutionary trajectory of defence industry in Pakistan began with the establishment of Pakistan Ordnance Factory at Wah cantonment to produce small arms, ammunition and explosive. In 1973, the Pakistan Aeronautical Complex (PAC) came up at Kamra, (north of Islamabad) with overhauling facilities for F-6 and French Mirages aircraft. This was followed by establishment of facilities to overhaul A-5 III, FT-5, Y-12, K-8 and F-7 aircraft variants.<sup>1</sup>In 1975, in a serious attempt to foray into aircraft manufacturing, Aircraft

Manufacturing Factory (AMF) was established at the PAC to undertake manufacturing of Mushshak, (meaning proficient), a primary flying trainer aircraft under license from SAAB SCANIA of Sweden.<sup>2</sup> Over the years, AMF has ventured into manufacturing of Jet aircraft trainer K-8 and unmanned aerial Vehicle FALCO and modern Jet fighter aircraft JF-17 Thunder.<sup>3</sup>

In an ambitious attempt to achieve a larger measure of self-reliance in the field of aviation industry, Pakistan has decided to amalgamate academia for R&D with aviation industry. In order to realize this objective, on July 06, 2017, the foundation stone of 'Aviation City and Air University Aerospace and Aviation Campus' was laid at PAC, Kamra.<sup>4</sup> The Aviation City will house the 'Air University Aerospace and Aviation Campus' which would have simulation centres and would focus ON hands-on learning in

maintenance and avionics repair facilities. In addition, there are plans afoot to set up an 'Aviation Research, Indigenization & Development (AvRID)' organisation as part of the aviation city which would primarily focus on multi-disciplinary R&D in specific technologies.<sup>5</sup>

The 'Aviation City' development plan was unveiled in a ceremony with much fanfare and press coverage attended by Pakistan's Federal Minister for Planning, Development and Reforms as well as by Chief of the Air Staff PAF, Air Chief Marshal Sohail Aman and other high ranking civil and military officials. In his address, the Air Chief outlined the program objectives of PAC, AvRID and Air University's Aerospace and Aviation Campus. He said that under the newly christened development Project, "Project Azm" (i.e. resolve or determination) at PAC, PAF will commence development of state-of-the-art aviation platforms, including a 5th-generation fighter, medium altitude long-endurance (MALE) unmanned aerial vehicle (UAV) and munitions.<sup>6</sup>

Setting aside the scepticism that many hold toward the Pakistan's claim that it will undertake R&D work in state-of-the-art technologies in aeronautics and aviation, it is worth analysing the factors that would shape the pursuit of PAF's next-generation fighter. The first option with Pakistan could be to piggyback on Chinese efforts in the development of FC-31 Gyr Falcon (or Shenyang J-31), which is being developed as a twin-engine, mid-size fifth-generation jet fighter

at Shenyang Aircraft Corporation. The second option could be partnering with another Chinese firm such as the Chengdu Aircraft Industry Group (CAIG). The PAC and CAIG have already been in collaboration for the development and production of the JF-17 at PAC in Pakistan.<sup>7</sup>

In Pakistan media, reports have come out that Pakistan may be roped in as a prospective partner in the TFX, Turkey's next-generation fighter programme. On multiple occasions since 2016, Ankara's and Islamabad have confirmed holding of bilateral talks on the issue, but it is unclear if any formal agreements have been made between the two, especially on commercial viability or in relation to possible PAF procurement.<sup>8</sup>

The setting of ambitious goals as described by the PAF Air Chief, needs to be analysed based on the political and economic realities. The aviation industry, especially the aircraft manufacturing, needs a set of competencies, skills, intellectual commitment, state-of-the-art infrastructure, and unrestrained financial support. It also requires concerted efforts in building of a competency base for immediate future as well as for long-term goals. Experts have differing views on the question – whether Pakistan possess requisite human, financial and technology capital, especially for an enterprise as complex as manufacturing fifth-generation jet fighter.

Some experts argue that the production of JF-17 Thunder (Joint Fighter-17), at Aircraft Manufacturing Factory, Pakistan, an outcome of joint development efforts by China and Pakistan, is a testimony of Pakistan's capability to execute complex technology projects. This argument needs to be evaluated in the light of ground realities. Firstly, the JF-17 development project was marred with delays and setbacks. There was a problem of excessive smoke emissions by the RD-93 engine of the aircraft. Following the third prototype, the air intakes were widened to address the problem.<sup>9</sup> During testing, efforts were made to rectify the repeated control problems by altering the wing leading edge root extensions (LERX). The vertical tail fin was enlarged to house an expanded electronic warfare equipment bay in the tip.<sup>10</sup> The Chinese-sourced avionics did not find favour with the PAF and after initial batch of 42 aircraft of Block-1 models, which had the Chinese KLJ-7 pulse Doppler radar, a worldwide search was launched for a more reliable avionics suites resulting in evaluation of British, French, and Italian avionics suites. In the next batch, the KLJ-7 radar was replaced with the Italian Galileo Avionica S-7 Grifo pulse Doppler radar with much better look-down-shoot-down capability.<sup>11</sup>

Though the production of JF-17 at AMF may have facilitated Pakistan to achieve a measure of self-reliance in aviation technologies and cultivating high standards of technical expertise, the JF-17 is mainly a low cost option for

countries with limited resources to replace their old fleets of aircraft. There were rumours that Pakistan was aggressively trying to convince Sri Lanka to purchase the JF-17 fighter jet and also upped the ante by offering Colombo an F-7 fighter for free for each JF-17 the Sri Lankan Air Force purchases from Pakistan.<sup>12</sup> However, Sri Lankan government, headed by President Maithripala Sirisena, cancelled its plans to procure JF-17 from Pakistan. The only country which has shown an interest in purchase of JF-17 from Pakistan is Myanmar, which in July 2015 signed a deal for 16 JF-17 Block II aircraft at a unit cost of US \$16 million.<sup>13</sup> Even the PAF has its reservations about the operational capability of JF-17. Air Marshal Muhammad Ashfaq Arain, PAF deputy chief, in an interview to Reuters, in April 2016, accepted that in counter-insurgency operations against the Taliban in North Waziristan, the JF-17s fell short of expectations due to the lack of precision targeting while carrying out ground attacks.<sup>14</sup>

It seems that the PAF Air Chief made the statements, which to some extent are not confidence inspiring due to the incongruity between Islamabad's strategic ambitions and its existing industrial and economic capabilities. However, it is possible that the ambitious plan is a result of renewed *entente cordiale* between Beijing and Islamabad, which is becoming ever more diverse and broad in character. The 'higher than Himalaya and deeper than the ocean' friendship between the two, underpinned by

nuclear and missile co-operation has also flourished in the aviation field. So, for India, it is necessary to monitor the growing strategic partnership between the two and evaluate how it may impact the strategic environment in South Asia.

***(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])***

## Notes

<sup>1</sup> Pakistan Aeronautical Complex Kamra, <http://www.pac.org.pk/>, accessed July 13, 2017.

<sup>2</sup> Aircraft Manufacturing Factory, <http://www.pac.org.pk/amf>, accessed July 13, 2017.

<sup>3</sup>Ibid.

<sup>4</sup>"Groundbreaking ceremony held for Aviation City in Kamra", *Pakistan Today*, July 6, 2017, <https://www.pakistantoday.com.pk/2017/07/06/ground-breaking-ceremony-held-for-aviation-city-in-kamra/>, accessed July 13, 2017.

<sup>5</sup>Ibid.

<sup>6</sup>Bilal Khan, "Pakistan announces 5TH-Gen fighter and medium-altitude long-endurance UAV programs", *QUWA Defence News and Analysis Group*, <http://quwa.org/2017/07/06/pakistan-announces-5th-gen-fighter-male-uav-programs/>, accessed July 13, 2017.

<sup>7</sup>Ibid.

<sup>8</sup>Ibid.

<sup>9</sup>Hewson, Robert, "Sino-Pakistani fighter improved", *Jane's Information Group*, February 28, 2007.

<sup>10</sup>Sobie, Brendan "Test flaws prompt rethink on China's FC-1 light fighter look", *Flight International*, 21 July 2009

<sup>11</sup> "IHS Jane's All the World's Aircraft: Development&Production," p. 114.

<sup>12</sup> "Pak desperate : Offers buy one JF-17 and take one used F-7 for FREE to Sri Lanka", *Defence News*, accessed July 13, 2017.

<sup>13</sup> SanjibBaruah, "Pakistan, China readying J-17 fighter jets for Myanmar", *The Asian Age*, Jun 25, 2017,

<sup>14</sup> John Irish, "Pakistan wants air force upgrade for prolonged militant fight," *Reuters*, April 7, 2016, <http://www.reuters.com/article/us-pakistan-airforce/militants-idUSKCN0X417E> , accessed on July 13, 2017.