Here's why you should binge-watch Damaged, India's first show about female serial killer

China's 2015 Military Strategy had unequivocally declared the necessity for the country to "...develop a modern maritime force commensurate with its national security needs; to safeguard its national sovereignty and maritime interests, and... for building itself into a maritime power". The maiden sortie, on May 12, by the PLA Navy's (PLAN) first home-built aircraft-carrier marked yet another milestone in China's resolute pursuit of comprehensive maritime power. Designated "Type 001", this ship will join the refurbished Soviet-era carrier Liaoning, while a much bigger follow-on "super carrier" — the "Type 002" — is stated to be under construction. If each of the PLAN's three fleets is to have a carrier, China will need 5-6 such ships.

The shift of maritime focus from "offshore waters defence" to "open seas protection", mandated by the 2015 Strategy, clearly signalled the PLAN's intent to brush aside the notional "first island chain" barrier, and sail into the blue waters of the Indo-Pacific to project power and exercise sea control. Having inaugurated its first Indian Ocean base in Djibouti, and invested in strategically located ports such as Gwadar and Hambantota, the PLAN is now well-positioned to mount expeditionary operations at India's doorstep.

Two aspects of China's new strategy deserve the close attention of India's defence planners. In order to keep US Navy aircraft carriers at bay, Chinese scientists evolved a unique anti-ship ballistic missile capability on which its "anti-access, area denial" (or A2/AD) doctrine is based. The reconciliation of its strong belief in A2/AD with a hugely expensive carrier-building programme signifies a major doctrinal shift within the PLAN. The other important point of note is China's obsession with technological autonomy. They have taken great pains to ensure that their home-built carriers are equipped with an indigenous fighter. Having acquired a prototype Russian Sukhoi-33, the Chinese reverse-engineered it to produce the J-15 (Flying Shark), a carrier-borne fighter — disregarding Russian protests over IPR violations.

If India is to forestall intimidation, it will need to plan a robust maritime response. Regrettably, declining defence budgets and a dysfunctional acquisition system have steadily eroded the combat capability of our armed forces. In 2014, it seemed that India's comatose military-industrial complex would be jolted awake by Prime Minister <u>Narendra Modi</u>'s inspiring exhortation to "Make in India". But four years later, an indifferent politico-bureaucratic system has reduced it to a sterile slogan. In this bleak scenario, a look at the navy's successful indigenisation endeavours is educative.

Realising that no nation had ever become a maritime power by importing hardware, a far-sighted naval leadership planted the seeds of self-reliance in the 1960s by persuading the government to embark on indigenous warship production. In the face of great scepticism, Mazagon Docks undertook licence production of the British-designed Leander class frigate, and delivered the first ship in 1972. Supported by a naval ship design organisation, our shipyards have since then launched nearly 150 warships — ranging from patrol boats to aircraft-carriers and from hydrographic vessels to nuclear submarines. Indigenous in design, these home-built warships await the development of weapon, sensor and propulsion systems by our scientists.

Having tasted success in warship-building, the navy turned its attention to the field of aeronautics. In the early 1990s, finding the DRDO's Light Combat Aircraft (LCA) programme in the doldrums, the Indian Navy (IN) decided to explore the feasibility of a carrier-borne version. The decision to initiate an LCA-Navy programme acknowledged the talent and ingenuity of our aircraft designers and engineers and aimed to energise our stagnant defence-technology base. A closer

examination of the embryo-LCA revealed major challenges in adapting a shore-based aircraft to fly from a ship but the navy affirmed its faith in the programme by initiating a development programme and contributing over Rs 400 crore as well as engineers and test pilots to this DRDO project.

Very early in the programme, the IN had, realistically, acknowledged the possibility that this project may not succeed or fail to meet the timelines required for India's first Indigenous Aircraft Carrier (IAC-1). A conscious decision was thus taken that while the LCA-Navy project would be funded and progressed, the service would, as a measure of prudence, identify an alternative aircraft for its new carriers. As the LCA-Navy programme kept slipping, this alternative turned out to be the MiG-29K, which now flies from INS Vikramaditya.

The IAF inducted the LCA into squadron service in 2016 and has placed an order for 123 more aircraft. In the navy's case, the prototype LCA-Navy was rolled out in July 2010 and first flew in April 2012. While a few simulated carrier trials have been undertaken from ashore, there is a long way to go before the LCA is ready for ship-borne operations. The IAF and navy versions of the LCA are both powered by engines of US origin but they both suffer major performance shortfalls due to deficit engine-thrust. On this count, both the services have declared their intention to look for fighters from abroad.

This brings us to the closely-related topic of the indigenous Kaveri turbojet engine. Under development for over two decades, the Kaveri is yet another DRDO venture that failed due as much to design deficiencies as to indecisive project-management. The HF-24 Marut fighter, abandoned prematurely, demonstrated that until India can design and produce its own aero-engines, the performance of any indigenous aircraft will be constrained by technology that can be imported. The ability to design a turbo-jet engine, however, involves arcane skills, and Kaveri's project-managers should have sought timely foreign expertise, instead of putting the project in limbo.

One cannot emphasise strongly enough that the LCA and the Kaveri constitute the vital core around which India can build a strong and dynamic aeronautical industry. Their design, development and flight-testing programmes have yielded priceless data which must be exploited. Steered to success, these projects could spawn a family of combat aircraft, drones and even cruise missiles. A marine gas-turbine version of the Kaveri is also feasible to power our warships.

Most DRDO projects have failed due to the absence of political vision and guidance, coupled with a deficit of project-management skills. The navy's warship building programmes (including the nuclear submarine projects) have clearly demonstrated that user-participation and project-management by handpicked service officers are the keys to outstanding success.

Fifty years of bitter experience should prompt the PMO to initiate a major paradigm shift in defence-industrial programmes. The user services must be placed in the driving seat of such projects and experienced military personnel positioned in management positions. Strategised over a 25-year timeframe and professionally managed, the LCA and Kaveri projects could become the torch-bearers of Modi's "Make in India" dream.

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