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Missing Argentine Submarine 'San Juan': Issues and Inferences

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While the President of Argentina has assured his people that the search for the missing Argentine submarine San Juan (S 42) will continue, there is not much good news for the families of the crew of the submarine and for Argentine Navy. There is evidence that the submarine has perhaps met its watery grave following a non-nuclear explosion on 15th November 2017, which was monitored near the last known position of the submarine. The sequence of events with no record of any evidence clearly indicates that something went amiss on the submarine that was commissioned in 1985, and also was given a mid-life upgrade between 2008 and 2013.

The question always has been about the efficacy and effectiveness of the Search, Rescue and Recovery systems that need to be deployed without any delay. Submarines, by nature, are complex entities operating in demanding environment that requires high levels of training, skill and maintenance. The Indian Navy (IN) – having been operating submarines since 1969 – has decades of experience in operating and maintaining conventional submarines. From the Soviet/ Russian *Foxtrot* and *Kilo* class, to the German Type 209 and the leased Russian nuclear attack submarines (SSN), India has moved on to its own ballistic-missile nuclear submarine (SSBN) INS *Arihant*, which – along with the follow-ons – will ably serve to strengthen India's nuclear deterrence. Along with the submarines inducted from the former Soviet Union, the IN operated the submarine support ship INS *Nistar*, which provided facilities for extracting a stricken crew from a distressed submarine. This vessel was also used to locate Ghazi - the Pakistani submarine that sank off Visakhapatnam .However, there was a substantial gap after the decommissioning of *Nistar*, which was sought to be bridged through an arrangement with the US Navy, and the contract came into force in 1997. This provided for the US Navy to fly out the necessary rescue equipment along with the Deep Submergence Rescue Vessel (DSRV) within 72 hours. However, the 'time-late' on datum is a crucial factor that would determine the success of a rescue mission. A crippled

submarine is constrained by its ability to maintain the required levels of oxygen. The inability to surface – either due to battle damage or malfunction in peacetime - would be a nightmare for the crew of the submarine. It is under these circumstances that there is a need to cut down all the time delays to rescue the crew.

In the case of the Argentinian submarine, it was indicated that the crew would have about seven days of oxygen supply and the day a signal was reported to have originated (later proved to be false) was the last day of the oxygen supply. The rescue forces also had to contend with high winds and twenty-metre high waves, which precluded any meaningful rescue mission to be undertaken. The weather will continue to play a dominant role in the mission's success or failure. The depth of the seas in the area of operations will continue to be major constraint in even reaching the submarine. Some accidents may take the submarine to well beyond the operating depths and the success of timely rescue is a factor of how soon the rescue platforms pinpoint the location and initiate rescue /recovery missions. There were two recent cases of service aircraft which fell in to the Bay of Bengal off Chennai; and in both the cases, even locating the aircraft position was a major challenge. In the first case of a Coast Guard Dornier aircraft in June 2015, submarines, ocean research vessels and commercial remotely operated (underwater) vehicle (RoV) combed the oceans for both signal and location. The sustained effort paid dividends after 33 days of intense search using all available means. Even after location, it was the ability of a RoV to use sophisticated gadgetry that enabled the recovery of the remains of the crew and also vital black box of the Dornier at a depth of nearly 1000 meters. In the case of the Indian Air Force AN-32 aircraft that went down in June 2016, unfortunately, there is no trace even today of the missing aircraft. The case of the service aircraft has been discussed to indicate the complexities of location and follow up action in deep waters to initiate rescue and recovery missions when time is running out.

Following the accident of IN submarine Sindhurakshak which sank alongside in harbour after explosions and another accident on the Kilo class in February 2014 resulting in the death of two officers, the Indian Navy had to accelerate the process of having its own rescue system. Accordingly, a contract was drawn up with James Fisher Defence in 2016 for a sum of 1900 crore for procuring two systems for use by the two fleets of the Navy. According to the reports of the Indian Navy and the company, the crew for the rescue systems are training in Scotland and the entire system would be available in 2018 for use by the Indian Navy. Since the Indian Navy is now operating nuclear

submarines, the related issue of how to integrate the to-be inducted equipment to deal with emergencies on nuclear powered submarines would be separate subject of study.

The Submarine Operating Authorities (SoA) around the world would be constantly working through their navies and the governments to ensure that they have the requisite equipment and well-trained personnel under a proven structure to be able to support submarine missions both during peace and during times of hostility.

In conclusion, the recent accident has demonstrated that the navies which operate submarine fleet have to create credible Search, Rescue and Recovery architecture and have them exercised regularly to build up confidence amongst both the submarine crew and also those who are operating the modern rescue systems. There is also a need to workup teams together in rescue missions during bilateral and multilateral exercises such as the Malabar.

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