



## Centre for Air Power Studies

### COOPERATION IN DEFENCE OFFERS FROM USA: BOON OR BANE

*Gp. Capt. Vivek Kapur*

*Senior Fellow, CAPS*

---

#### **Background**

During his recent visit to India in early August 2014 the US Defence Secretary, Charles Hagel, made several arms offers to India. These included offers for outright sales of weapons systems some of which have already been evaluated by the Indian armed Forces and added to the Indian wish list for purchase. In addition there were a few offers for co-production of advanced weapons including potential collaboration in development of the next generation of some of these weapons.<sup>1</sup> These news reports bring back memories of reports of the ten advanced defence technologies approved by the US administration for sharing with India during the tenure of the UPA Government in year 2013.<sup>2</sup> A more detailed examination of the offers made and their implications is required before arriving at a look at the best options for India.

#### *US Technology Offers*

The offer to transfer 10 technologies in 2013 during then Prime Minister Manmohan Singh's visit to the US was short on details. The offer left doubts that lead one to believe that essentially the offer was limited to giving clearance for selling some weapons and weapons systems, that had till then been held back for political reasons, to India. True technology transfer did not find prominent mention in the details available in the public domain. In this context the offer made by Mr Charles Hagel is much more specific. Mr Hagel has offered India sales of the Javelin anti-tank missile, the Hawk XXI surface to air missile

(SAM) system, access to advanced algorithms that can be used to sift large electronic data to make reasonable deductions for intelligence purposes and electric catapults for use on aircraft carriers. Moreover he has offered to enter into joint development of the next generation anti-tank missile to follow the Javelin. There is also mention of unspecified joint development of modern weapon systems.<sup>3</sup> These offers require a more detailed analysis.

Firstly, the offer of the Javelin anti-tank missile: Currently India makes do with older generation command guided anti-tank missiles such as the Milan and its Soviet counterparts. These are second generation missiles that lack fire and forget capability and have effective ranges limited to about 2 km. The Javelin is a fire and forget missile with a seeker able locate and lock to targets on its own. In addition the higher effective range of the weapon also makes it more potent. This is currently a state of the art anti-tank missile. India has been developing the Nag anti-tank missile for several years now. Designed to be a fire and forget missile, the Nag is yet to enter service. It is reportedly still undergoing user evaluation and development trials. Discussions with people involved with the project indicate that the program has achieved several enviable milestones such as developing effective robust algorithms for target detection in severe clutter conditions using the missile's imaging infra red (IIR) seeker. Steps are also said to be underway to develop a millimetric wavelength radar seeker for the missile to enhance its

#### ARTICLES BY SAME AUTHOR

[\*\*TECHNOLOGY FOR NATIONAL SECURITY: India'S SPACE CAPABILITIES CONTINUE TO IMPROVE\*\*](#)

[\*\*SOLAR IMPULSE AND E-FAN: TECHNOLOGY ADVANCES TOWARDS REDUCTION OF GREENHOUSE GAS EMISSION IN AVIATION\*\*](#)

[\*\*GLONASS FAILURE: IMPLICATIONS FOR INDIA\*\*](#)

[\*\*PROGRESS TOWARDS INDIAN SELF SUFFICIENCY IN SATELLITE NAVIGATION TECHNOLOGY\*\*](#)

[\*\*CONCENTRATED FIREPOWER VS NUMBERS IN WARFARE\*\*](#)

[\*\*TECHNOLOGY FOR FUTURE WARFARE: MECHANICAL ENHANCEMENT\*\*](#)

[\*\*More Articles\*\*](#)

capability. The Nag is today inferior to the Javelin which is an in service weapon. However, the development successes achieved already point towards a future advanced indigenous anti-tank missile development capability.

In this context the US Javelin offer raises a few concerns. If the Javelin co-production is agreed to will it involve technology transfer of its component systems to India? That is to say will India be allowed to understand the sub systems in detail and be given freedom to use this knowledge in its own weapon systems such as the Nag and the Nag's follow on missiles or will this technology be locked up in severe control regimes that require intrusive US inspection permissions etc. The US track record in this regard is not encouraging. It is imperative that irrespective of the Javelin deal and development of the next generation missiles being agreed to or not that the Nag program continues at full steam. This is even more important in case India agrees to the Javelin offer from the US. The US tendency to go into sanction overdrive to secure its own perceived interests and the pressure it brings to bear on other countries to fall in line with its sanctions drive makes it important for India to retain control of technology separate from that liable to US sanctions threats. Looking back a few decades the US sold its most advanced fighter of the time, the F-14, to Iran under the Shah. A regime change in Iran led to crippling US sanctions that made the Iranian F-14 fleet ineffective in combat. India should cater for possible US sanctions interfering with the US collaboration programs.

The Hawk XXI offer is interesting on several counts. Firstly this missile system dates back to the 1950s and 1960s. The original Hawk missile system has been modified progressively to come to the Hawk XXI. That said the system is obsolete with patches applied to try to retain some effectiveness in modern times. It is very similar in this respect to the US offer of the F-16IN in the IAF's recent fighter selection competition. The Hawk XXI like the F-16IN represents a major effort to bring an obsolete weapon system to relevance in modern battle by stretching old technology through application of fixes to make it relevant. In this context save for a few modern sub systems the Hawk XXI is unlikely to represent the state of the art in SAM systems. The gains of inducting the Hawk XXI are thus unlikely to be major. Moreover the IAF is in the process of inducting the indigenous Akash SAM which has an engagement envelope and capability similar to that of the Hawk XXI. The

Akash is fully indigenous and thus gives freedom from sanctions and other country technology squeezes.

Both the Javelin and Hawk offer mirror indigenous systems in process of induction or under late stage trials for induction. This leads to the doubt whether the offer of these weapons systems could be an effort to kill indigenous developments that are showing potential for success.

The offer of electric catapults meets future needs of the Navy. Indian Navy's (IN's) current aircraft carriers use ski jump configurations to launch fighter aircraft. There is likely to be requirement to launch larger special mission aircraft from the carriers in future. Availability of advanced catapults would help immensely in this. Electric catapults are the next advance over the steam catapults in use in earlier times. The US is the world leader in this technology. The catapult offer does not duplicate any indigenous development program and meets a need of the IN. The only major issues to consider here are the extent (depth and width) of technology transfer and sanction proofing. There is no known indigenous program at risk in this case.

Big Data as offered by the US meets an Indian need. While, given the earlier successes of the Indian IT industry in putting the IAF's Air Force Network (AFNET) and Integrated Air Command and Control System (IACCS) in place, it is possible for India to develop these capabilities on its own over time; The US offer would reduce the time taken for getting this capability greatly.

Beyond this no detailed information is available in the public domain on the technologies offered by Mr Hagel. From a study of the publicly available information it emerges that India requires to take a pragmatic and careful look at the US offers and to negotiate to ensure that the US technology transfer offers help and do not hinder India's national security. The four main issues India requires to consider are:-

- Ensuring that effective technology transfer takes place and not just screwdriver (just assembly level) transfer. This technology transfer should be unfettered by

tight controls and should enable utilisation of the technology in even indigenous weapon systems.

- There should be adequate safeguards from sanctions affecting these programs. The memory of the Tejas Light Combat Aircraft (LCA) flight control system software testing issue with the US highlights this best.
- Indigenous programs of weapon development must be continued even if in parallel with Indo-US co-development programs. Feasibility of pure technology (“know why” and “know how”) transfer to Indian entities whether in the Public or Private sector free from foreign control.
- The absorption and internalisation of technology obtained through collaborative programs with the US.

In absence of these four criteria above being met such “technology transfers” from the US may be more of a problem than a gain. At the end of the day it is only indigenous technology owned or internalised by Indian entities that can be relied upon to support India’s security and defence needs.

The US offer of advanced defence technologies should not be taken at face value and it should be studied in detail by concerned agencies in the service headquarters as well as by industry before proceeding further. There should not be any undue haste in stepping into these offered deals. At the same time undue delays should also be avoided. It should be very clear that acceptance of these technology transfers should not be linked to an alliance like structure which may go against Indian interests and independent pursuit of foreign policy.

## **Conclusion**

The visit to India by Mr Charles Hagel brought news of US willingness to share seven defence technologies with India. Going beyond a similar sentiment stated in 2013 during Prime Minister Manmohan Singh’s visit to the US, this time issues of co-production and co-development of modern technologies was also covered. A few of the offered weapons

systems clash with already underway indigenous weapons development programs while others address gaps in the defence capabilities available in India. From India's point of view it is important that co-production and co-development deals with the US are not restricted by the US tendency to impose overbearing conditionalities and these collaborative programs must lead to internalisation of new advanced technologies by Indian entities. Additionally there must be adequate safeguards from the US tendency to go overboard in imposing sanctions. Lastly, purely indigenous programs must be continued in parallel with collaborative programs as a safety against future US sanctions shocks.

*(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])*

---

### End Notes

<sup>1</sup> [Prमित Pal Chaudhuri and Sanjib Baruah](http://www.hindustantimes.com/india-news/us-ups-defence-tech-offer-to-india-with-cyber-security-big-data/article1-1250070.aspx), "US opens defence arsenal to India, 7 offers on table", <http://www.hindustantimes.com/india-news/us-ups-defence-tech-offer-to-india-with-cyber-security-big-data/article1-1250070.aspx>, accessed on 15 Aug 2014.

<sup>2</sup> "US submits list of 10 defence technologies for transfer to India", <http://timesofindia.indiatimes.com/india/US-submits-list-of-10-defence-technologies-for-transfer-to-India/articleshow/23405768.cms>, accessed on 14 Aug 2014.

<sup>3</sup> N1