Centre for Air Power Studies (CAPS)

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SPACE BASED COUNTER TERRORISM & CRIME INITIATIVES: USING THE INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM (IRNSS) TO TRACK STOLEN CARS & OTHER VEHICLES

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Background:

Of the 195 countries on Earth, only five boast of a space based navigation satellite system, These include the US with NAVSTAR GPS, Russia with its GLONASS, China with its BEIDOU, Japan with its QZSS and now India with its IRNSS. The European Union's Galileo SATNAV system is but a multi-nation conglomerate and with nothing more than two out of thirty satellites launched, is thus far from fruition. By contrast, India on 20 Jan 2016 launched the fifth satellite (IRNSS-1E) of its seven satellite constellation enabling coverage all across India. The constellation is designed for regional and national rather than global utility; consequently, even with five out of seven satellites launched, it can be of considerable use to the nation. Optimal utility would certainly come about only after the entire system is in place, tested and operationalised,

but nothing inhibits application of these "*advanced technologies to the real problems of man and society*". The above quote draws on the vision of Vikram Sarabhai, the doyen of the Indian space programme who made the statement decades ago. The eminent wisdom of the statement resonates deep and clear even in the present context and is as applicable as ever. The real problems are fluid and ever changing as also is the opportunity in advanced technologies to adapt and counter problems. Space capabilities, in particular, provide a bouquet of opportunities that can be applied to combat the modern day challenges of terrorism and organised crime. The present discourse does not intend to go into the wide variety of uses of space, but only attempts to explore the applicability of the IRNSS to one of the most pressing problems presently vexing security

agencies-the recent spate of stolen cars and other vehicles that are expected to be used by terrorists to further their nefarious designs.[1]

The Scope of the Problem

The Indian population is 1.28 Billion strong and going by the open source year 2012 figures of the Government of India, the number of motor vehicles registered is over 160 million, and considering a Compounded Annual Growth Rate of Over 10 %[2], the present numbers are undoubtedly mind boggling. With millions of vehicles being added every year, the problem would only keep rising. Equally onerous is the task of police, intelligence and security agencies in locating and keeping a track etc of the one-odd suspected explosive laden terrorist vehicle amongst the millions. For instance the number of vehicles in Delhi is over 10 million, far exceeding the sanctioned strength of Delhi Police which stands at 69,645[3]. Even with all the other security agencies thrown in, the ratios just do not match up. The proverbial needle in the hay-stack appears less of a challenge in the circumstances. The needle would retain its external character, whereas in this case, the car/vehicle can be easily repainted, redesigned to change its external character. The task would continue getting onerous as India develops further and more vehicles keep adding to the inventory. Human beings have their limitations; the registration process, the scan and check processes and the vast variety of processes in the loop related to

motor vehicles are largely manual with their own individual subsets of problems and procedures.

The Potential of IRNSS in Countering Terrorism, Crime and Enhancing Security

It is here that the IRNSS can contribute significantly. The system is indigenous, controlled by India, the data stays within India and the system at present covers all India[4]. The present system of vehicle monitoring in India is based on individually procured NAVSTAR or GLONASS GPS receivers that are not indigenous and though suitable for day-to-day affairs are not suitable in circumstances like the present wherein a terrorist strike with a stolen vehicle is imminent and no means of locating or tracking the vehicle is readily available. For security uses, a mandatory installation of IRNSS locator devices within the engine of the vehicle or any other such area that cannot be easily tampered with needs to be undertaken. This is significantly different from the High Security Number Plates (HSNP) that is aimed only at tamper-proof vehicle numbering. An IRNSS locator chip can carry a wide variety of information including the vehicle, number, owner details as also location, tracking, navigation and other information. A single chip in this case is much more versatile, purposeful and effective. Software that sparks off alarm in case of tampering with the chip can easily be fabricated; such systems are already available in the market and can be designed to be part of the system. A vehicle tracking system on an IRNSS

platform that combines the use of space based automatic vehicle location in individual vehicles with software that provides requisite information for a comprehensive picture of vehicle locations is the need of the hour. Real time vehicle information can be viewed on electronic maps using SATCOM or standard Internet with suitably designed software. In some cases, vehicle tracking is already in use for fleet management, coordination etc; the same concept needs to be expanded to a national level on an Indian platform. The prime issue related to application of the above system may be expected to relate primarily to affecting coordination amongst the multifarious agencies which, given the scope of the problem of terrorism and the fact that it affects everybody equally, should not be a difficult proposition. The next contentious issue would be related to infringement of privacy rights of individuals etc. However, these could be allayed by using active and passive location techniques. Active locators would enable real time tracking and location, whereas passive would only retain information and become active only on being triggered by the central system. Depending on the state of emergency, the system can be tweaked to be as suitable as possible by shifting from 'passive' to 'active' mode of tracking.

CONCLUSION

The technology is now readily available to the country, the information pertaining to all vehicles in India is available with the Government of India, the requisite software is also available within the country and hence there exist but little reason why all these disparate elements cannot be put together to obtain a system that can be applied to the real problems of man and society that plague the nation today and are likely to accentuate in the future.

(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

[1] Somreet Bhattacharya, "Ahead of Republic Day, car with 'Army' stickers stolen from Delhi's Lodhi Garden", *The Times of India*, January 24, 2016, http://timesofindia.indiatimes.com/city/delhi/Ahead-of-Republic-Day-car-with-Army-stickers-stolen-from-Delhis-Lodhi-Garden/articleshow/50707003.cms, Accessed on 25 Jan 2016.

[2] Figures sourced from data of Ministry of Surface Transport, Government of India available at https://data.gov.in/visualize3/?inst=556520bb219fe4ee7ad43af7cd98089b&vid=607# and http://mospi.nic.in/Mospi_New/upload/SYB2015/CH-20-MOTOR%20VEHICLES/MOTOR%20VEHICLE-WRITEUP.pdf. All figures are up t year 2012 only.

[3] Report of Ministry of Home Affairs, "Bureau of Police Research and Development- ID Note No. 14014/05/05-UTP dated 02 Apr 2008 available at http://bprd.nic.in/writereaddata/linkimages/1424233217-delhi-police.pdf accessed on 25 Jan 2016.

[4] Kiran Krishnan Nair, "The IRNSS 1E- Another Keystone for make in India" CAPS IN-focus, 21 Jan 2016 at http://capsindia.org/files/documents/CAPS_Infocus_KKN_07.pdf accessed on 25 Jan 2016.