

India needs to urgently modernise the armed forces.

In a new programme called 'Insect Allies', launched by the Defence Advanced Research Projects Agency (DARPA), which is responsible for developing military technologies in the U.S., researchers have been asked to evolve insects that introduce genetically modified viruses into crops. This is being done ostensibly to address infections. One is yet to come across a more ingenious explanation for a lethal weapon system being developed. Imagine these insects being let loose in fields with their genes deviously modified? Is this agricultural warfare? The journal, Science, acknowledges that the programme "may be widely perceived as an effort to develop biological agents for hostile purposes". The DARPA has denied that this is its intention, but history has proven that noble human intentions have been overpowered by the lure of obtaining a technological advantage to enhance power.

Developing hard power

No country calling itself a power can afford to lag behind its adversaries in the technology innovation cycle. China realised this early, and its advancements in weapons technology has been impressive. With research and development (R&D) allocation growing from \$13.4 billion in 1991 to \$377 billion in 2015 (20% of the world's R&D budget), China moved from an era of reverse engineering to creative adaptations and now to disruptive innovations, as seen in its J-20 stealth fighter and the hypersonic wave rider vehicle programmes. On mastering the latter, China would be able to strike any target in the world within an hour of the decision being taken. With such technological breakthroughs, and as part of its influence operations, it is no surprise that China is changing rules that govern geopolitical relations. Accordingly, it has moved from Deng Xiaoping's philosophy — 'hide your strength and bide your time' — to Xi Jinping's propagation of aggressive aggrandisement.

However, the narrative in Delhi is stuck on the mundane issues of third- and fourth-generation fighter programmes of Tejas and Rafale. India seems to hope for an environment sans war. Soft power processes such as the Wuhan summit and the waiver for India under CAATSA (Countering America's Adversaries Through Sanctions Act) are important but they are not substitutes for the hard power necessary to buttress nation-building. China and the U.S. may be adversaries, but economic reasons will not let their rhetoric and mutual trade wars cross the rubicon. Cold calculations of national interest drive their decision-making, and collateral damage by way of broken promises and overlooked pledges of friendships with less powerful nations, India included, are plausible. Promises of friendships between unequals do not withstand the lure of economic give and take of the powerful engaged in a geo-economic tussles; it is a truism that while capability takes time to build, intentions can change overnight. It is time that India stands on its own with its indigenous hard power.

Needed: An adequate budget and time

Hard power grows only if there is an adequate budget, and if time is given for acquiring in-

Intellectual property in the military. According to the World Bank, India's total investment in R&D has stayed static at 0.63% of the GDP for a 20-year period! More worrying is that three-fifth of this is in sectors other than defence. In the same period, China's R&D investment has gone up from 0.56% to 2.07% of its GDP. Reports state that the Indian Air Force has delayed payment to HAL and that the Defence Ministry has not paid military contractors. The scene thus appears grim vis-à-vis monies available for strengthening the war-waging potential of the services. Due to several false starts in arms acquisitions, 'India fatigue' pervades the defence manufacturing sector. The poor participation of major weapon manufacturers with their top-line products at the last two Aero India and DefExpo exhibitions is proof of this.

Military power does not come with purchase of sniper rifles, the emergency acquisition of which caused euphoria in some circles recently. It is also a given that not one election cycle but decades are needed to build military power, which is the life span of at least three governments. The rise of Japan's military in the early 19th century, Germany's military between 1920 and 1940, and China's military between 1980 and 2005 attest to decades-long commitment of focussed political and scientific attention and assured availability of adequate monies. With the strengthening of China-Pakistan relations, and the modernisation of their militaries, it is vital that India's 2019-20 Budget (as also the interim vote on account) addresses the need to urgently modernise the armed forces. Developing intellectual property through indigenous R&D is key to this endeavour. What India's polity needs is some serious bipartisan introspection and discussion, which will be in national interest.

GS World Team...

'Insect Allies'

What is it?

- It has been launched by the U.S. Defense Advanced Research Projects Agency (DARPA).
- This is a program in which various viruses carrying insects such as aphids are deployed in large numbers to help crops to fight against natural hazards such as drought, frost, insect and pollution.
- The effects of these incursions are mitigated by applying targeted therapies to mature plants.
- In order to develop such a pattern, Insect Allies team adopts a natural and efficient two-step delivery system for transferring modified genes in plants: insect vectors and plant viruses that they transmit.

Worries

- If the program is proven successful, then the method can also be misused as biological weapon which can be used to destroy crops.
- Research of this program may possibly be a violation of the Biological Weapon Convention (BWC), which prohibits the development of any

biological agents with prohibited, protective or other peaceful purposes.

- Apart from this, many other experts believe that despite good intentions, it is possible that it can be used by people having a wrong motive.

What is the law of CAATSA?

- It was implemented in January 2018.
- This gives Trump administration the right to punish institutions involved in significant transactions with Russia's defense or intelligence institutions.
- CAATSA is 'Countering America's Adversaries Through Sanctions Act'.
- Under this American law, there is a provision to impose a U.S. ban on countries, which purchase any major defense from Russia.
- The United States initially imposed this restriction against Iran, North Korea and Russia.
- This law has banned the matters of cyber security, crude oil projects, corruption, Russian defense or transactions with intelligence, Russia's transfer of arms, arms to Syria, etc. against Russia.
- This bill was passed in the meeting of the 115th US Parliament on August 2, 2017.

Expected Questions (Prelims Exams)

Expected Questions (Mains Exams)

1. Consider the following statements regarding the CAATSA Law-

1. Under this American law, there is provision to put sanction on any country which makes a large defence procurement from Russia.
2. America put this sanction for the first time against Iraq, North Korea and Russia.

Which of the above statements is/are correct?

- (a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

Q. Considering the modernisation of the terrorists and present realtions of China-Pakistan, are the Indian armed forces capable enough to counter these challanges? Evaluate. (250 Words)

(250 Words)

Note: Answer of Prelims Expected Question given on 23 Jan. is 1(d)

