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Report – In-House Meeting

“Hypersonic Missile Race: Regional and Global Implications”

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The Arms Control & Disarmament Centre (ACDC) at the Institute of Strategic Studies Islamabad (ISSI) organised an in-house discussion meeting on “Hypersonic Missile Race: Regional and Global Implications” on January 26, 2021. The ISSI research faculty and members of the ACDC advisory board attended the event. Malik Qasim Mustafa, Director ACDC, moderated the discussion.

In his introductory remarks, Malik Qasim Mustafa, Director ACDC, said that hypersonic missile technology is one of the top emerging military technologies which is generally defined as a missile with a speed of Mach 5 or greater (1 Mach is 1225.04 kph and Mach 5 is 6125.22 kph). Major powers like the US, Russia and China are already in a new arms race to develop hypersonic missile technology. In September 2020 by conducting a Mach 6 hypersonic technology test, India became the fourth country to join this elite club of hypersonic technology. A new arms race to develop hypersonic missile technology has severe regional and global implications. This technology will disturb the balance of power among major nuclear-armed states and make an anti-ballistic missile system useless. It will also question nuclear security, nuclear and conventional readiness.

In her presentation, Ms. Ghazala Yasmin Jalil, Research Fellow at ACDC, provided a comprehensive technical overview of the hypersonic missiles. To qualify as hypersonic, a missile has to achieve at least a speed five times that of sound. That is 4000 miles per hour. There are weapons that can travel for up to 20 – 27 Mach. The hypersonic missiles are highly manoeuvrable and can have long ranges. Due to high speed and manoeuvrability, they can penetrate missile defence systems. What makes hypersonic missiles lethal is not just their speed, but their ability to manoeuvre once launched. There are three kinds of hypersonic missiles – the guided ballistic missile, boost guide missiles and hypersonic cruise missiles.

While talking about the great power competition for hypersonic missiles, she said that Russia is developing the “Avangard” intercontinental ballistic missile system, which uses a hypersonic boost-glide vehicle, with the ability to travel at speed 20 times that of sound. Russia also has ‘Kinzhal’ that is a guided cruise missile with a range of 1200 km and a speed of Mach 10. It is capable of carrying nuclear and conventional warheads. Russia announced the deployment of Avangard in December 2019. Russia is also developing “Tsirkon,” which is a ship-launched

hypersonic cruise missile capable of targeting on the ground and at sea at speeds of Mach 6-8.2. Russia accelerated work on its hypersonic missiles once the US withdrew from the Anti-Ballistic Missiles (ABM) Treaty and ignored the Russian concerns over the deployment of missile defence systems. China also has several hypersonic missiles. China has DF-ZF hypersonic glide vehicle that can be deployed on top of DF-17 with a speed of Mach 10. China unveiled its DF-17 hypersonic missile on its National Day parade in October 2019. China is also developing an air-launched CH-AS-X-13 missile with Mach 10 speed and a 1500km range. In August 2018, China also tested Starry Sky-2, which is a hypersonic vehicle prototype capable of carrying nuclear warheads. The US has also developed many hypersonic missiles. It has hypersonic missiles that are mostly meant for conventional use. The US Navy has Conventional Prompt Strike (CPS), the Army has Long-Range Hypersonic Weapon (LRHW) and the Air Force has AGM-183 Air-Launched Rapid Response Weapon (ARRW). It also has the Tactical Boost Glide (TBG) and the Hypersonic Airbreathing Weapon Concept (HAWC). The US claims that these weapons are aimed at neutralising the Russian and Chinese significant hypersonic missile developments.

India has now joined the race to develop hypersonic missile technology. It first unsuccessfully tested HSTDV in June 2019. However, the September 2020 test was reportedly a success. It was powered by a scramjet engine and has a speed of Mach 6. The Indian Defence Research and Development (DRDO) is also working on a hypersonic cruise missile BrahMos-II with the help of Russia. It is also expected to attain Mach 6 speed using hypersonic scramjet technology. Although India maybe five to six years away from developing hypersonic missiles, it has severe implications at the regional and global level. The race to develop and master hypersonic missiles is destabilising in many ways.

It is not only destabilising at the global level but also at the regional level now that India is also pursuing this technology. This new arms race would change nuclear deterrence calculations. A country that has hypersonic missiles would enjoy an edge over a country that does not. It would increase first strike tendencies in the possessor state with the confidence that it can strike its adversary and absorb a counter strike through missile defence. This scenario would be relevant in the case of India and Pakistan whereby it would further erode nuclear deterrence between the two and create first strike temptations on the part of New Delhi. With short missile flight times in South Asia - 5-10 minutes - hypersonic missiles would further shorten this time considerably,

making the India-Pakistan nuclear theatre even more unstable. Hypersonic missiles would provide India with a considerable edge in the South Asian nuclear deterrence equation. It will, thus, create new challenges for Pakistan's security. At the hypersonic level, it would likely be a matter of a minute or two for India to initiate the first strike in absence of a credible countermeasure. These geographical circumstances would likely provide India with an edge vis-à-vis Pakistan, thus, becoming a considerable challenge.

The hypersonic missile's development is also destabilising at the global level. This will also affect strategic calculations among the great powers like the US, Russia and China and undermine nuclear deterrence. Russia and China have already made it apparent that their hypersonic missile development is a hedge against the US missile defence. The technology would further fuel an arms race leading great powers to possibly go for the development of hypersonic anti-missile systems and other technologies to defeat adversaries' missiles. Another destabilising factor is the deployment of conventional hypersonic missiles, which may lead to the failure of the adversary to distinguish between a conventional or nuclear warhead. This may lead to an unauthorised or accidental nuclear launch. A hypersonic missile race is already on its way between the US, Russia, China and now India. These missiles would further deepen an arms race and bring instability at the global and regional level. At the global level as well, the move away from arms control arrangement and the onset of a new arms race bodes ill for peace and security. Great powers also need to take practical measures to avoid arms races.

Responding to the question regarding counter-measures available for Pakistan, she said that the development of hypersonic missiles by India further undermines nuclear deterrence with Pakistan and increases the chances of conflict in South Asia. Hypersonic missiles would further enhance India's offensive counterforce capabilities against Pakistan. For Pakistan, this would necessitate an assessment of the threat from India and possible countermeasures

