

Pugwash Briefing Paper

Hypersonic Weapon Series

#4

Why do States develop
Hypersonic Weapons?

Background

The Pugwash Foundation supported an international Pugwash workshop on hypersonic weapons, which took place in Geneva on 9 and 10 December 2019. The meeting brought together 30 international participants from various continents, including current and former government officials, scientists, engineers, academics and experts from think tanks and other non-governmental organisations.

The workshop aimed at fostering a constructive exchange of views on hypersonic weapons. Participants discussed factors driving the development, roles and purposes of hypersonic weapons, as well as the risks associated with their deployment and use.

Based on the workshop's discussions, the Pugwash Foundation produced a series of briefing papers on hypersonic weapons. The series covers the following themes:

- What is a hypersonic weapon?
- What technical challenges do hypersonic weapons raise?
- What are the current hypersonic weapon development programmes?
- Why do States develop hypersonic weapons?
- What are the roles and missions of hypersonic weapons?
- What are the risks associated with hypersonic weapons?
- How to mitigate the risks associated with hypersonic weapons?
- How to counter hypersonic weapons?

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Why do States develop hypersonic weapons?

Reasons behind the development of hypersonic weapons seem to be manifold and specific to each country. Without any attempt to attribute more importance to one reason over another, the workshop identified the following key drivers:

- The current techno-military context
- Geopolitical tensions
- Changing threat perceptions
- Strategic calculations
- Tactical calculations
- Status

The current techno-military context

The current techno-military context creates concrete opportunities for hypersonic weapon development. A permissive R&D environment in government agencies, academia and the private sector, combined with progress in spacecraft and ballistic missile technologies has provided in several instances such favorable conditions. Over time, lower production costs also helped drive the development of hypersonic weapons.

Geopolitical tensions

The increasingly tense geopolitical and security climate has prompted some countries to upgrade their overall military capabilities and/or introduce new technology.

Changing threat perceptions

Some countries may feel threatened by decisions or actions taken by other nations. They can see the pursuit of a more assertive security policy or the development /acquisition /deployment of new weapon systems as leading to the erosion of their own military capabilities and hence perceive it as a threat. The development of ballistic missile defence systems, for example, may have triggered an interest in developing hypersonic weapons. This, in turn, may have prompted other countries to invest in similar programmes and upgrade their missile defence systems.

Strategic calculations

Some countries may have considered their current nuclear deterrent capability insufficient to keeping the strategic balance. In this regard, the acquisition of HGVs and HCMs may boost confidence in the effectiveness of one's second-strike capability, thereby enhancing their nuclear deterrent capability.

Tactical calculations

Some countries may expect HGVs and HCMs to provide them with an advantage in certain theatres of operation. In this regard, the acquisition of HGVs and HCMs may enhance a country's anti-access/area-denial capabilities and/or the ability to hit protected high-value targets or “fleeting targets” deep into another country's territory.

Status

Hypersonic weapons, as symbol of technological advancement, can provide their owners with an exclusive status and a sense of belonging to the technologically more advanced powers. Subsequent « fear of missing out » and being left behind in technological advances may contribute to the decision of developing hypersonic weapons.

Conclusion

Reasons behind the development of hypersonic weapons seem to be manifold and specific to each country. Without any attempt to attribute more importance to one reason over another, these include:

- The current techno-military context
- Geopolitical tensions
- Changing threat perceptions
- Strategic calculations
- Tactical calculations
- Status

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