

Chairpersons and distinguished members of the committees, thank you for the opportunity to speak today. My name is James Harper, and I am a committee member of the planetary defense task force. Today, I'd like to speak with you about the current state of global defense against potential asteroid impacts, some current limitations with humanity's preparedness against said asteroid impacts, and potential solutions and recommendations to better protect us against extraterrestrial harm.

So? What threats do we face? According to the Center for Near Earth Object Studies at the NASA Jet Propulsion Laboratory, humanity is currently aware of 40 thousand Near Earth Objects, NEOs for short. Of these, around 2,500 are considered Potentially Hazardous Asteroids, PHAs for short. These objects are asteroids with a diameter larger than 460 feet and that could come within 4.65 million miles of the Earth.

Let's make it clear the threat these PHAs pose. The little boy atomic bomb dropped on Hiroshima had an explosive yield of 15 kilotons of TNT, and because of the intensity of these explosions, our country has immense countermeasures, able to be deployed within minutes, to prevent damage from a nuclear attack. The asteroid that made the dinosaurs go extinct, conversely, boasted an explosive magnitude of 100 million megatons of TNT. That is equivalent in magnitude to roughly 6.7 billion Little Boy atomic bombs. To our best knowledge, there are no known asteroids that pose an immediate threat to Earth, but that can change very easily. This means that an asteroid could show up to an unprepared Earth at any minute. Thus, I believe it is our country's best interest to establish an asteroid deflection system, and encourage world wide cooperation.

Currently, asteroid deflection technology exists. NASA's Double Asteroid Redirection Test (DART) Mission involved permanently altered the orbit of the moonlit Dimorphos via kinetic impact. But its power, and ability to be launched in urgency is very limited. The largest player in terms of defense against NEOs in the US is NASA's Planetary Defense Coordination Office (PDCO), but they only receive around \$150 million annually in funding, compared to the ~\$175 billion equivalent invested into nuclear interception. The European Space Agency(ESA) Planetary Defense office also has programs like the Fireball Camera or the Hera Mission, but both are still in the planning phase. The United Nations Office for Outer Space Affairs (UNOOSA) also prioritizes planetary defense, and has made efforts to spread awareness, but has made no real strides in mitigation.

As we can see, both the lack of US funding and global initiative have led to deficits in our ability to be adequately prepared in case of an asteroid strike. Thus, I am proposing the following recommendations:

- An increased amount of funding across the board towards asteroid detection, impact prevention, global preparedness, and increased emergency communication infrastructure.
- A new development of asteroid deflection technology that includes ready to launch deflectors on standby at any given moment, much like the already existing Terminal High Altitude Area Defense (THAAD) Program for ballistics missiles
- An increased strive in global awareness and infrastructure to protect the entirety of the Earth from asteroid strikes. The US has been leading initiatives like these for years, and this could be achievable via the lens of UNOOSA

Overall, we must stay aware that an imminent, potentially extinction level threat, could strike from anywhere and at any moment, permanently affecting the entire world. Given the possible danger and lack of immediate defense, I hope we as a country are able to come to some sort of conclusion that safeguards our planet from this danger. Thank you very much for your time and I hope you consider my proposals.

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