

Briefing Paper-The Question of Space Debris

Since the 1950s, humans have launched thousands of space equipment into orbit. Many are still there today facing us with an ever-increasing risk of collision as we launch more.

Space debris is any human made object, principally in Earth's orbit which no longer serves a function and has been left by humans in space. It can refer to big objects such as dead satellites that have failed or smaller things such as bits of debris or paint that have fallen off a rocket. There are roughly 2,000 active satellites orbiting Earth at the moment, nevertheless there are also 3,000 dead, unused satellites littering space too. To add, there are around 34,000 pieces of space debris bigger than 10cm and millions of smaller pieces that could cause disastrous effects if they hit something else.

All space debris results in space due to humans launching space equipment from Earth, and it will remain in orbit until it reenters the atmosphere. Some objects in lower orbits reenter the atmosphere only a few years after being launched but burn up before they reach the ground. Nonetheless, other debris left at a higher altitude can continue to circle earth for hundreds to thousands of years.

The biggest current danger space debris poses are to other active satellites also in orbit. These satellites have to move out of the way of incoming space debris to make sure they don't get hit and potentially damaged or destroyed. Thousands of collision avoidance manoeuvres are made yearly, including by the International Space Station, where astronauts live. The environmental dangers of space debris are among concern too. These include light pollution-too many artificial satellites and space debris orbiting earth can increase the brightness of the night sky, which could hinder astronomers' ability to make observations. Space debris that burns up in the atmosphere causes compositional chemicals to be released into our atmosphere, not only causing solar radiation but also consuming the ozone layer and depleting it further. This on top of global warming caused by mankind on earth could end up being very harmful to our environment in years to come.

Several companies are planning new groups of satellites called mega constellations, if successful this could add a further 50,000 satellites to Earth's orbit. This will increase the risk of space debris hugely in years to come, hence why we need to start finding solutions to this problem.

The United Nations asks that all companies remove their satellites from orbit withing 25 years after the end of their mission. Nevertheless, this is very difficult to enforce all around the world. By making sure satellites are removed from orbit once they are no longer active, we can begin to mitigate the problem of space junk in the future.

As the problem of space debris continues to remain unsolved what can the UN do to tackle the issue in an effective manner which allows all member nations to do their part in saving space.