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### Plan

#### Plan- States ought to prohibit the appropriation of outer space by private entities.

#### The plan clarifies customary law to ban private satellite mega-constellations that appropriate outer space and solves otherwise detrimental space debris.

Johnson 20 [Chris, Space Law Advisor for Secure World Foundation, 9 years of professional experience in international space law and policy. J.D. from New York Law School; 2020; “The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit,” <https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatusofmegaleoconstel.pdf>] brett

Yes, This Is Impermissible Appropriation

Article II of the Outer Space Treaty, discussed above, is clear on the point that the appropriation of outer space, including the appropriation of either void space or of celestial bodies, is an impermissible and prohibited action under international law. No means or methods of possession of outer space will legitimize the appropriation or ownership of outer space, or subsections thereof.

Excludes Others

The constellations above, because they seem to so overwhelmingly possess particular orbits through the use of multiple satellites to occupy orbital planes, and in a manner that precludes other actors from using those exact planes, constitute an appropriation of those orbits. While the access to outer space is nonrivalrous – in the sense that anyone with the technological capacity to launch space objects can therefore explore space – it is also true that orbits closer to Earth are unique, and when any actor utilizes that orbit to such an extent to these proposed constellations will, it means that other actors simply cannot go there.

To allow SpaceX, for example, to so overwhelmingly occupy a number of altitudes with so many of their spacecraft, essentially means that SpaceX will henceforth be the sole owner and user of that orbit (at least until their satellites are removed). No other actors can realistically expect to operate there until that time. No other operator would dare run the risk of possible collision with so many other spacecraft in that orbit. Consequently, the sole occupant will be SpaceX, and if “possession is 9/10th of the law,” then SpaceX appears to be the owner of that orbit.

Done Without Coordination

Additionally, SpaceX and other operators of megaconstellations are doing so without any real international conversation or agreement, which is especially egregious and transgressive of the norms of outer space. Compared to the regime for GSO, as administered by the ITU and national frequency administrators, Low Earth Orbit is essentially ungoverned, and SpaceX and others are attempting to seize this lack of authority to claim entire portions of LEO for itself; and before any international agreement, consensus, or even discussion is had. They are operating on a purely “first come, first served” basis that smacks of unilateralism, if not colonialism.

Governments Are Ultimately Implicated

As we know, under international space law, what a nongovernmental entity does, a State is responsible for. Article VI of the Outer Space Treaty requires that at least one State authorize and supervise its nongovernmental entities and assure their continuing compliance with international law. As such, the prohibition on nonappropriation imposed upon States under Article II of the Outer Space Treaty applies equally to nongovernmental private entities such as SpaceX.

Nevertheless, through the launching and bringing into use of the Starlink constellation, SpaceX will be the sole occupant, and thereby, possessor, both fact and in law, of 550 km, 1100 km, 1130 km, 1275 km, and 1325 km above our planet (or whatever orbits they finally come to occupy). The same is true for the other operators of these large constellations which will be solely occupying entire orbits.

Long-Term Occupation Constitutes Appropriation

These altitudes are additionally significant, as nonfunctional spacecraft in orbits lower than around 500 km will re-enter the Earth’s atmosphere in months or a few years, but the altitudes selected for the Starlink constellation, while technologically desirable for their purposes, also mean that any spacecraft which are not de-orbited from these regions may be there for decades, or possibly even hundreds of years. By comparison, the granting of rights for orbital slots at GSO is in 15-year increments, a length of time much less than what the altitudes of the megaconstellations threaten. Such long spans of time at these altitudes by these megaconstellations further bolster the contention that this occupation rises to the level of appropriation of these orbits.

Prevents Others from Using Space

Article I of the Outer Space Treaty establishes that the exploration and use of outer space is “the province of all mankind.” It further requires that this exploration and use shall be by all States “without discrimination of any kind, on a basis of equality and in accordance with international law...” However, when one private corporation so overwhelmingly possesses entire portions of outer space, their use is discriminatory to other potential users and interferes with their freedom to access, explore, and use outer space. So long as these actors are so dominantly possessing and occupying those orbits, their actions exclude others from using them. What other operator would dare use orbits where there are already hundreds of satellites operating as part of a constellation? It would be an extremely unwise and risky decision to try to share these orbits with a mega constellation, so they will likely choose other altitudes and orbits. This massive occupation of particular orbits effectively defeats others from enjoying the use of outer space. While a State can issue permits for one of its corporations allowing them to launch and operate satellites to this extent, that does not automatically mean that their activities in outer space, an area beyond national sovereignty, are therefore in perfect accordance with the strictures of international law. Indeed, national permissions offer no such guarantee.

No Due Regard for Others

That these megaconstellations violate the prohibition on appropriation in Article II is additionally supported by Article IX of the Outer Space Treaty. Article IX requires that in the exploration and use of outer space, States “shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space... with due regard to the corresponding interests of other States...” There is hardly any way to view this deployment of megaconstellations as showing any type of due regard to the corresponding interests of others. This lack of regard further supports the notion of their unilateral transgressive violations of the purposes of space law norms.

Harmful Contamination

The impacts of the spacecraft on the pressing issue of space debris need not be gone into detail here. Suffice it to say, megaconstellations threaten mega-debris. The failure rate of these comparatively cheap satellites should give pause, because if 5% of a constellation of 100 satellites fails, this is 5 guaranteed new pieces of debris intentionally introduced to the fragile space domain. Article IX of the Outer Space Treaty warns of harmful contamination of the space environment and requires States to take appropriate measures to prevent this harmful contamination. A responsible government could not, in all seriousness, permit the intentional release of such amounts of space debris, especially in the already fraught orbits that many megaconstellations are headed towards. While the threat of space debris is not directly relevant to the accusation of appropriation of outer space, it goes towards the argument that these actors are conducting activities in a manner lacking in regard to others, and in fact, amounts to excluding others from using the space domain. By excluding others, this has the effect of taking orbits for themselves, which IS occupation.

If This Isn’t Appropriation, Then What Is?

Arguing in the alternative, if these megaconstellations — in their dominant occupation of entire orbits in orbital planes with numerous satellites — could be considered (merely for the sake of argument) to not be appropriation, we must therefore ask: what would be appropriation? What use of void space, including orbits of the Earth, would constitute actual appropriation? What further, additional fact of these uses of space, if added to the scenario, would cause that constellation to cross over the line into clearly prohibited appropriation? Perhaps the exact same scenario, but supplemented with an actual, formal claim of sovereignty, issued by a government, is the only element which could be added to megaconstellations which would then cross the threshold into appropriation. However, a formal claim of sovereignty would be merely an act occurring on Earth and would not change any actual facts in the space domain. Consequently, the lack of a formal claim of sovereignty should not be the deciding criteria in arriving at the conclusion that megaconstellations constitute appropriation of orbits.

Conclusion

In conclusion, these megaconstellations effectively occupy entire orbital regions with their vast fleet of spacecraft and in so doing effectively preclude other actors from sharing those domains. They have done so, or are attempting to do so, without any international consensus or discussion, which is most egregious for a domain outside of State sovereignty and which no State can own. Governments will ultimately be responsible for this appropriation, and both are prohibited from appropriating space. In distinction to GSO, their permission to go there means that they could occupy these regions for incredibly long periods — which again shows their appropriation. These constellations significantly prevent others from using those regions, which therefore interferes with others’ right to explore and use space. And ultimately, this reckless ambition shows absolutely no due regard (as per Article IX) for the corresponding rights of others. As such, these megaconstellations constitute an impermissible appropriation of particular regions of outer space, regardless of any formal, official claim of such by a responsible, authorizing government.

### Advantage 1: Satellites

#### Incoming mega-constellations of satellites ensure unmanageable space debris, triggering the Kessler Syndrome.

Boley & Byers 21 [Aaron C., Department of Physics and Astronomy @ The University of British Columbia\*, and Michael, Department of Political Science @ The University of British Columbia; Published: 20 May 2021; Scientific Reports; “Satellite mega-constellations create risks in Low Earth Orbit, the atmosphere and on Earth,” <https://www.nature.com/articles/s41598-021-89909-7>] brett

Companies are placing satellites into orbit at an unprecedented frequency to build ‘mega-constellations’ of communications satellites in Low Earth Orbit (LEO). In two years, the number of active and defunct satellites in LEO has increased by over 50%, to about 5000 (as of 30 March 2021). SpaceX alone is on track to add 11,000 more as it builds its Starlink mega-constellation and has already filed for permission for another 30,000 satellites with the Federal Communications Commission (FCC)1. Others have similar plans, including OneWeb, Amazon, Telesat, and GW, which is a Chinese state-owned company2. The current governance system for LEO, while slowly changing, is ill-equipped to handle large satellite systems. Here, we outline how applying the consumer electronic model to satellites could lead to multiple tragedies of the commons. Some of these are well known, such as impediments to astronomy and an increased risk of space debris, while others have received insufficient attention, including changes to the chemistry of Earth’s upper atmosphere and increased dangers on Earth’s surface from re-entered debris. The heavy use of certain orbital regions might also result in a de facto exclusion of other actors from them, violating the 1967 Outer Space Treaty. All of these challenges could be addressed in a coordinated manner through multilateral law-making, whether in the United Nations, the Inter-Agency Debris Committee (IADC), or an ad hoc process, rather than in an uncoordinated manner through different national laws. Regardless of the law-making forum, mega-constellations require a shift in perspectives and policies: from looking at single satellites, to evaluating systems of thousands of satellites, and doing so within an understanding of the limitations of Earth’s environment, including its orbits.

Thousands of satellites and 1500 rocket bodies provide considerable mass in LEO, which can break into debris upon collisions, explosions, or degradation in the harsh space environment. Fragmentations increase the cross-section of orbiting material, and with it, the collision probability per time. Eventually, collisions could dominate on-orbit evolution, a situation called the Kessler Syndrome3. There are already over 12,000 trackable debris pieces in LEO, with these being typically 10 cm in diameter or larger. Including sizes down to 1 cm, there are about a million inferred debris pieces, all of which threaten satellites, spacecraft and astronauts due to their orbits crisscrossing at high relative speeds. Simulations of the long-term evolution of debris suggest that LEO is already in the protracted initial stages of the Kessler Syndrome, but that this could be managed through active debris removal4. The addition of satellite mega-constellations and the general proliferation of low-cost satellites in LEO stresses the environment further5,6,7,8.

Results

The overall setting

The rapid development of the space environment through mega-constellations, predominately by the ongoing construction of Starlink, is shown by the cumulative payload distribution function (Fig. 1). From an environmental perspective, the slope change in the distribution function defines NewSpace, an era of dominance by commercial actors. Before 2015, changes in the total on-orbit objects came principally from fragmentations, with effects of the 2007 Chinese anti-satellite test and the 2009 Kosmos-2251/Iridium-33 collisions being evident on the graph.

Figure 1

[Figure 1 omitted]

Cumulative on-orbit distribution functions (all orbits). Deorbited objects are not included. The 2007 and 2009 spikes are a Chinese anti-satellite test and the Iridium 33-Kosmos 2251 collision, respectively. The recent, rapid rise of the orange curve represents NewSpace (see "Methods").

Full size image

Although the volume of space is large, individual satellites and satellite systems have specific functions, with associated altitudes and inclinations (Fig. 2). This increases congestion and requires active management for station keeping and collision avoidance9, with automatic collision-avoidance technology still under development. Improved space situational awareness is required, with data from operators as well as ground- and space-based sensors being widely and freely shared10. Improved communications between satellite operators are also necessary: in 2019, the European Space Agency moved an Earth observation satellite to avoid colliding with a Starlink satellite, after failing to reach SpaceX by e-mail. Internationally adopted ‘right of way’ rules are needed10 to prevent games of ‘chicken’, as companies seek to preserve thruster fuel and avoid service interruptions. SpaceX and NASA recently announced11 a cooperative agreement to help reduce the risk of collisions, but this is only one operator and one agency.

Figure 2

[Figure 2 omitted]

Orbital distribution and density information for objects in Low Earth Orbit (LEO). (Left) Distribution of payloads (active and defunct satellites), binned to the nearest 1 km in altitude and 1° in orbital inclination. The centre of each circle represents the position on the diagram, and the size of the circle is proportional to the number of satellites within the given parameter space. (Right) Number density of different space resident objects (SROs) based on 1 km radial bins, averaged over the entire sky. Because SRO objects are on elliptical orbits, the contribution of a given object to an orbital shell is weighted by the time that object spends in the shell. Despite significant parameter space, satellites are clustered in their orbits due to mission requirements. The emerging Starlink cluster at 550 km and 55° inclination is already evident in both plots (Left and Right).

Full size image

When completed, Starlink will include about as many satellites as there are trackable debris pieces today, while its total mass will equal all the mass currently in LEO—over 3000 tonnes. The satellites will be placed in narrow orbital shells, creating unprecedented congestion, with 1258 already in orbit (as of 30 March 2021). OneWeb has already placed an initial 146 satellites, and Amazon, Telesat, GW and other companies, operating under different national regulatory regimes, are soon likely to follow.

Enhanced collision risk

Mega-constellations are composed of mass-produced satellites with few backup systems. This consumer electronic model allows for short upgrade cycles and rapid expansions of capabilities, but also considerable discarded equipment. SpaceX will actively de-orbit its satellites at the end of their 5–6-year operational lives. However, this process takes 6 months, so roughly 10% will be de-orbiting at any time. If other companies do likewise, thousands of de-orbiting satellites will be slowly passing through the same congested space, posing collision risks. Failures will increase these numbers, although the long-term failure rate is difficult to project. Figure 3 is similar to the righthand portion of Fig. 2 but includes the Starlink and OneWeb mega-constellations as filed (and amended) with the FCC (see “Methods”). The large density spikes show that some shells will have satellite number densities in excess of n=10−6 km−3.

Figure 3

[Figure 3 omitted]

Satellite density distribution in LEO with the Starlink and OneWeb mega-constellations as filed (and amended) with the FCC. Provided that the orbits are nearly circular, the number densities in those shells will exceed 10–6 km−3. Because the collisional cross-section in those shells is also high, they represent regions that have a high collision risk whenever debris is too small to be tracked or collision avoidance manoeuvres are impossible for other reasons.

Full size image

Deorbiting satellites will be tracked and operational satellites can manoeuvre to avoid close conjunctions. However, this depends on ongoing communication and cooperation between operators, which at present is ad hoc and voluntary. A recent letter12 to the FCC from SpaceX suggests that some companies might be less-than-fully transparent about events13 in LEO.

Despite the congestion and traffic management challenges, FCC filings by SpaceX suggest that collision avoidance manoeuvres can in fact maintain collision-free operations in orbital shells and that the probability of a collision between a non-responsive satellite and tracked debris is negligible. However, the filings do not account for untracked debris6, including untracked debris decaying through the shells used by Starlink. Using simple estimates (see “Methods”), the probability that a single piece of untracked debris will hit any satellite in the Starlink 550 km shell is about 0.003 after one year. Thus, if at any time there are 230 pieces of untracked debris decaying through the 550 km orbital shell, there is a 50% chance that there will be one or more collisions between satellites in the shell and the debris. As discussed further in “Methods”, such a situation is plausible. Depending on the balance between the de-orbit and the collision rates, if subsequent fragmentation events lead to similar amounts of debris within that orbital shell, a runaway cascade of collisions could occur.

Fragmentation events are not confined to their local orbits, either. The India 2019 ASAT test was conducted at an altitude below 300 km in an effort to minimize long-lived debris. Nevertheless, debris was placed on orbits with apogees in excess of 1000 km. As of 30 March 2021, three tracked debris pieces remain in orbit14. Such long-lived debris has high eccentricities, and thus can cross multiple orbital shells twice per orbit. A major fragmentation event from a single satellite could affect all operators in LEO.

Even if debris collisions were avoidable, meteoroids are always a threat. The cumulative meteoroid flux15 for masses m > 10–2 g is about 1.2 × 10–4 meteoroids m−2 year−1 (see “Methods”). Such masses could cause non-negligible damage to satellites16. Assuming a Starlink constellation of 12,000 satellites (i.e. the initial phase), there is about a 50% chance of 15 or more meteoroid impacts per year at m > 10–2 g. Satellites will have shielding, but events that might be rare to a single satellite could become common across the constellation.

One partial response to these congestion and collision concerns is for operators to construct mega-constellations out of a smaller number of satellites. But this does not, individually or collectively, eliminate the need for an all-of-LEO approach to evaluating the effects of the construction and maintenance of any one constellation.

#### Scenario 1: Climate

#### Earth observation satellites key to warming adaptation

Alonso 18 [(Elisa Jiménez Alonso, communications consultant with Acclimatise, climate resilience organization) “Earth Observation of Increasing Importance for Climate Change Adaptation,” Acclimatise, May 2, 2018, <https://www.acclimatise.uk.com/2018/05/02/earth-observation-of-increasing-importance-for-climate-change-adaptation/>] TDI

Earth observation (EO) satellites are playing an increasingly important role in assessing climate change. By providing a constant and consistent stream of data about the state of the climate, EO is not just improving scientific outcomes but can also inform climate policy.

Managing climate-related risks effectively requires accurate, robust, sustained, and wide-ranging climate information. Reliable observational climate data can help scientists test the accuracy of their models and improve the science of attributing certain events to climate change. Information based on projections from models and historic data can help decision makers plan and implement adaptation actions.

Providing information in data-sparse regions

Ground-based weather and climate monitoring systems only cover about 30% of the Earth’s surface. In many parts of the world such data is incomplete and patchy due to poorly maintained weather stations and a general lack of such facilities.

EO satellites and rapidly improving satellite technology, especially data from open access programmes, offer a valuable source information for such data-sparse regions. This is especially important since countries and regions with a lack of climate data are often particularly vulnerable to climate change impacts.

International efforts for systematic observation

The importance of satellite-based observations is also recognised by the international community. Following the recommendations of the World Meteorological Organization’s (WMO) Global Climate Observing System (GCOS) programme, the UNFCCC strongly encourages countries that support space agencies with EO programmes to get involved in GCOS and support the programme’s implementation. The Paris Agreement highlights the need for and importance of effective and progressive responses to the threat of climate change based on the best available scientific knowledge. This implies that climate knowledge needs to be strengthened, which includes continuously improving systematic observations of the Earth’s climate.

To meet the need of such systematic climate observations, GCOS developed the concept of the Essential Climate Variable, or ECV. According to WMO, an ECV “is a physical, chemical or biological variable or a group of linked variables that critically contributes to the characterization of Earth’ s climate.” In 2010, 50 ECVs which would help the work of the UNFCCC and IPCC were defined by GCOS. The ECVs, which can be seen below, were identified due to their relevance for characterising the climate system and its changes, the technical feasibility of observing or deriving them on a global scale, and their cost effectiveness.

The 50 Essential Climate Variables as defined by GCOS.

One effort supporting the systemic observation of the climate is the European Space Agency’s (ESA) Climate Change Initiative (CCI). The programme taps into its own and its member countries’ EO archives that have been established in the last three decades in order to provide a timely and adequate contribution to the ECV databases required by the UNFCCC.

Robust evidence supporting climate risk management

Earth observation satellites can observe the entire Earth on a daily basis (polar orbiting satellites) or continuously monitor the disk of Earth below them (geostationary satellites) maintaining a constant watch of the entire globe. Sensors can target any point on Earth even the most remote and inhospitable areas which helps monitor deforestation in vast tropical forests and the melting of the ice caps.

Without insights offered by EO satellites there would not be enough evidence for decision makers to base their climate policies on, increasing the risk of maladaptation. Robust EO data is an invaluable resource for collecting climate information that can inform climate risk management and make it more effective.

#### Warming causes extinction

Klein 14[(Naomi Klein, award-winning journalist, syndicated columnist, former Miliband Fellow at the London School of Economics, member of the board of directors of 350.org), *This Changes Everything: Capitalism vs. the Climate*, pp. 12-14]

In a 2012 report, the World Bank laid out the gamble implied by that target. “As global warming approaches and exceeds 2-degrees Celsius, there is a risk of triggering nonlinear tipping elements. Examples include the disintegration of the West Antarctic ice sheet leading to more rapid sea-level rise, or large-scale Amazon dieback drastically affecting ecosystems, rivers, agriculture, energy production, and livelihoods. This would further add to 21st-century global warming and impact entire continents.” In other words, once we allow temperatures to climb past a certain point, where the mercury stops is not in our control.¶ But the bigger problem—and the reason Copenhagen caused such great despair—is that because governments did not agree to binding targets, they are free to pretty much ignore their commitments. Which is precisely what is happening. Indeed, emissions are rising so rapidly that unless something radical changes within our economic structure, 2 degrees now looks like a utopian dream. And it’s not just environmentalists who are raising the alarm. The World Bank also warned when it released its report that “we’re on track to a 4-C warmer world [by century’s end] marked by extreme heat waves, declining global food stocks, loss of ecosystems and biodiversity, and life-threatening sea level rise.” And the report cautioned that, “there is also no certainty that adaptation to a 4-C world is possible.” Kevin Anderson, former director (now deputy director) of the Tyndall Centre for Climate Change, which has quickly established itself as one of the U.K’s premier climate research institutions, is even blunter; he says 4 degrees Celsius warming—7.2 degrees Fahrenheit—is “incompatible with an organized, equitable, and civilized global community.”¶ We don’t know exactly what a 4 degree Celsius world would look like, but even the best-case scenario is likely to be calamitous. Four degrees of warming could raise global sea levels by 1 or possibly even 2 meters by 2100 (and would lock in at least a few additional meters over future centuries). This would drown some island nations such as the Maldives and Tuvalu, and inundate many coastal areas from Ecuador and Brazil to the Netherlands to much of California and the northeastern United States as well as huge swaths of South and Southeast Asia. Major cities likely in jeopardy include Boston, New York, greater Los Angeles, Vancouver, London, Mumbai, Hong Kong, and Shanghai.¶ Meanwhile, brutal heat waves that can kill tens of thousands of people, even in wealthy countries, would become entirely unremarkable summer events on every continent but Antarctica. The heat would also cause staple crops to suffer dramatic yield losses across the globe (it is possible that Indian wheat and U.S. could plummet by as much as 60 percent), this at a time when demand will be surging due to population growth and a growing demand for meat. And since crops will be facing not just heat stress but also extreme events such as wide-ranging droughts, flooding, or pest outbreaks, the losses could easily turn out to be more severe than the models have predicted. When you add ruinous hurricanes, raging wildfires, fisheries collapses, widespread disruptions to water supplies, extinctions, and globe-trotting diseases to the mix, it indeed becomes difficult to imagine that a peaceful, ordered society could be sustained (that is, where such a thing exists in the first place).¶ And keep in mind that these are the optimistic scenarios in which warming is more or less stabilized at 4 degrees Celsius and does not trigger tipping points beyond which runaway warming would occur. Based on the latest modeling, it is becoming safer to assume that 4 degrees could bring about a number of extremely dangerous feedback loops—an Arctic that is regularly ice-free in September, for instance, or, according to one recent study, global vegetation that is too saturated to act as a reliable “sink”, leading to more carbon being emitted rather than stored. Once this happens, any hope of predicting impacts pretty much goes out the window. And this process may be starting sooner than anyone predicted. In May 2014, NASA and the University of California, Irvine scientists revealed that glacier melt in a section of West Antarctica roughly the size of France now “appears unstoppable.” This likely spells down for the entire West Antarctic ice sheet, which according to lead study author Eric Rignot “comes with a sea level rise between three and five metres. Such an event will displace millions of people worldwide.” The disintegration, however, could unfold over centuries and there is still time for emission reductions to slow down the process and prevent the worst. ¶ Much more frightening than any of this is the fact that plenty of mainstream analysts think that on our current emissions trajectory, we are headed for even more than 4 degrees of warming. In 2011, the usually staid International Energy Agency (IEA) issued a report predicting that we are actually on track for 6 degrees Celsius—10.8 degrees Fahrenheit—of warming. And as the IEA’s chief economist put it: “Everybody, even the school children, knows that this will have catastrophic implications for all of us.” (The evidence indicates that 6 degrees of warming is likely to set in motion several major tipping points—not only slower ones such as the aforementioned breakdown of the West Antarctic ice sheet, but possibly more abrupt ones, like massive releases of methane from Arctic permafrost.) The accounting giant PricewaterhouseCoopers as also published a report warning businesses that we are headed for “4-C , or even 6-C” of warming.¶ These various projections are the equivalent of every alarm in your house going off simultaneously. And then every alarm on your street going off as well, one by one by one. They mean, quite simply, that climate change has become an existential crisis for the human species. The only historical precedent for a crisis of this depth and scale was the Cold War fear that we were headed toward nuclear holocaust, which would have made much of the planet uninhabitable. But that was (and remains) a threat; a slim possibility, should geopolitics spiral out of control. The vast majority of nuclear scientists never told us that we were almost certainly going to put our civilization in peril if we kept going about our daily lives as usual, doing exactly what we were already going, which is what climate scientists have been telling us for years. ¶ As the Ohio State University climatologist Lonnie G. Thompson, a world-renowned specialist on glacier melt, explained in 2010, “Climatologists, like other scientists, tend to be a stolid group. We are not given to theatrical rantings about falling skies. Most of us are far more comfortable in our laboratories or gathering data in the field than we are giving interviews to journalists or speaking before Congressional committees. When then are climatologists speaking out about the dangers of global warming? The answer is that virtually all of us are now convinced that global warming poses a clear and present danger to civilization.”

#### Scenario 2: Miscalc

#### Early warning satellites going dark signals attacks – causes miscalc and goes nuclear

Orwig 16 [(Jessica, MS in science and tech journalism from Texas A&M, BS in astronomy and physics from Ohio State) “Russia says a growing problem in space could be enough to spark a war,” Insider,’ January 26, 2016, <https://www.businessinsider.com/russia-says-space-junk-could-spark-war-2016-1>] TDI

NASA has already warned that the large amount of space junk around our planet is growing beyond our control, but now a team of Russian scientists has cited another potentially unforeseen consequence of that debris: War.

Scientists estimate that anywhere from 500,000 to 600,000 pieces of human-made space debris between 0.4 and 4 inches in size are currently orbiting the Earth and traveling at speeds over 17,000 miles per hour.

If one of those pieces smashed into a military satellite it "may provoke political or even armed conflict between space-faring nations," Vitaly Adushkin, a researcher for the Institute of Geosphere Dynamics at the Russian Academy of Sciences, reported in a paper set to be published in the peer-reviewed journal Acta Astronautica, which is sponsored by the International Academy of Astronautics.

Say, for example, that a satellite was destroyed or significantly damaged in orbit — something that a 4-inch hunk of space junk could easily do traveling at speeds of 17,500 miles per hour, Adushkin reported. (Even smaller pieces no bigger than size of a pea could cause enough damage to the satellite that it would no longer operate correctly, he notes.)

It would be difficult for anyone to determine whether the event was accidental or deliberate.

This lack of immediate proof could lead to false accusations, heated arguments and, eventually, war, according to Adushkin and his colleagues.

A politically dangerous dilemma

In the report, the Adushkin said that there have already been repeated "sudden failures" of military spacecraft in the last two decades that cannot be explained.

"So, there are two possible explanations," he wrote. The first is "unregistered collisions with space objects." The second is "machinations" [deliberate action] of the space adversary.

"This is a politically dangerous dilemma," he added.

But these mysterious failures in the past aren't what concerns Adushkin most.

It's a future threat of what experts call the cascade effect that has Adushkin and other scientists around the world extremely concerned.

The Kessler Syndrome

In 1978, American astrophysicist Donald Kessler predicted that the amount of space debris around Earth would begin to grow exponentially after the turn of the millennium.

Kessler 's predictions rely on the fact that over time, space junk accumulates. We leave most of our defunct satellites in space, and when meteors and other man-made space debris slam into them, you get a cascade of debris.

The cascade effect — also known as the Kessler Syndrome — refers to a critical point wherein the density of space junk grows so large that a single collision could set off a domino effect of increasingly more collisions.

For Kessler, this is a problem because it would "create small debris faster than it can be removed," Kessler said last year. And this cloud of junk could eventually make missions to space too dangerous.

For Adushkin, this would exacerbate the issue of identifying what, or who, could be behind broken satellites.

The future

So far, the US and Russian Space Surveillance Systems have catalogued 170,000 pieces of large space debris (between 4 and 8 inches wide) and are currently tracking them to prevent anymore dilemmas like the ones Adushkin and his colleagues cite in their paper.

But it's not just the large objects that concern Adushkin, who reported that even small objects (less than 1/3 of an inch) could damage satellites to the point they can't function properly.

Using mathematical models, Adushkin and his colleagues calculated what the situtation will be like in 200 years if we continue to leave satellites in space and make no effort to clean up the mess. They estimate we'll have:

1.5 times more fragments greater than 8 inches across

3.2 times more fragments between 4 and 8 inches across

13-20 times more smaller-sized fragments less than 4 inches across

"The number of small-size, non-catalogued objects will grow exponentially in mutual collisions," the researchers reported.

#### Nuke war causes extinction – it won’t stay limited

Edwards 17 [(Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky/card is only parts of the interview directly from Paul Edwards.) “How nuclear war would affect Earth’s climate,” EarthSky, September 8, 2017, earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate] TDI

We are not talking enough about the climatic effects of nuclear war.

The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges.

The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide.

What about a larger-scale conflict?

A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption.

The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs.

Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion?

At this writing, I think we are closer to a nuclear war than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in.

North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S.

It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today?

To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.

#### Scenario 3: Water Wars

#### Sats key to stop water wars- biggest risk of war

Givetash ’18 (Linda Givetash, Canadian-South African journalist based in London, U.K., NBC News, “Early-warning tools aim to prevent 'water wars,' curb droughts”, <https://www.nbcnews.com/news/world/early-warning-tools-aim-prevent-water-wars-curb-droughts-n917001>, December 25, 2018)

Water scarcity is a global security risk. Researchers are developing ways to forecast risks to prevent conflicts. LONDON — In a year of extreme heat and water-related tensions, researchers are trying to develop an early-warning system to prevent the devastating consequences of droughts that exacerbate geopolitical tensions. The Water, Peace and Security partnership aims to find better methods to monitor risks and trigger early interventions. Such technology is necessary as climate change amplifies water shortages plaguing countries across the globe. Related NEWS 'Island of Peace' faces uncertain future as Mideast grapples with water scarcity The U.S. Department of Defense has warned that water scarcity is a global security threat because it drives instability that can lead to wider terrorism and violence. The partnership — formed earlier this year by academics in Europe and the U.S. — aims to pinpoint locations where water crises and other overlapping vulnerabilities could stir conflicts. "The idea is to identify hotspots early enough so policy action can be taken before something escalates into violence," said Susanne Schmeier, a lecturer in water law and diplomacy at IHE Delft and coordinator of the partnership. Schmeier cautioned against labeling events as "water wars," explaining that there’s no evidence to suggest water scarcity directly triggers war. But it can compound tensions in regions wracked with political instability or poverty. Water scarcity has been attributed to playing a role in Syria’s civil war and the spread of militant groups such as Boko Haram in the Lake Chad basin. The warning system being developed uses a range of data including hydrological information and satellite imaging to monitor and calculate risks to water access around the globe. To determine the risk for conflicts, it tracks media reports in more than 100 languages by flagging a list of keywords in real time. The data has limitations. Satellite imaging runs into challenges with cloud cover or certain topographical characteristics, said Karen Meijer, a researcher at the Dutch institute Deltares that develops tools to monitor water resources. Related NEWS An island nation in the Mediterranean Sea is running dry The figures needed may not exist or be outdated, since the system largely relies on publicly available "open" data, Meijer said. Governments withholding data about reservoirs andother infrastructure may also prove to be a challenge. The warning-system tool is being trained to consider the many combinations of conflict-triggering factors from weak governments to local disputes to identify potential flashpoints. The findings it generates will not be as thorough as a scientific study for regions flagged as potential hotspots, Meijer said, but it will help those in power to make informed decisions. “International policy action is quite often driven by short-term considerations,” Schmeier said. Building more wells in response to a looming drought appears logical, she said, as an example. But those wells could have negative impacts, fueling animosity by seemingly prioritizing one community over others or dangerously depleting the resource — interconnected issues that the warning system aims to expose. Drought forecasting has become increasingly accurate for periods of six months into the future for many regions. It played an important role in mitigating the effects of drought in Ethiopia and Kenya in 2015, according to Micha Werner, associate professor in hydraulic engineering at IHE Delft. But forecasts were less effective in Somalia which didn’t have similar capacities to take action. Related WORLD NEWS The Dead Sea is dying. A $1.5 billion plan aims to resurrect it. Droughts can cost countries billions of dollars, so even a 10 percent reduction on the impact is beneficial, he said. “But you need the political will to do that.” Forecasters have warned that the coming year could be particularly bad for Australia, southern Africa and much of northern South America, thanks to predictions of a weak El Nino weather system for 2019. Colombia's Environment Minister Ricardo Lozano has called for action, warning that the phenomenon could cause rainfall deficits of up to 80 percent there in the first three months of next year. He warned that could result in more forest fires, failed crops, and water shortages that may force rationing. El Nino has already delayed the rainy season for eastern Africa and resulted in a shortfall of rain in southern countries including Zambia, Zimbabwe, Botswana and South Africa. It follows persistent dry conditions that contributed to Cape Town's "Day Zero" scare. How a three-year drought changed life in Cape Town MAY 20, 201801:55 The phenomenon could result in inconsistent rainfall for the Horn of Africa, bringing downpours and floods or extend dry conditions. To prepare for the worst, Henry Karemeri Ndungu, climate change specialist for the International Federation of Red Cross and Red Crescent Societies in Kenya, said the organization maintains a stockpile of supplies and evacuation facilities. In southern Africa, the Red Cross and its partners are also monitoring and preparing for food shortages caused by drought. “The mantra is prevention is better than cure,” Ndungu said.

#### Water triggers ME conflict

O’Connor ’18 (Tom O’Connor is a staff writer for newsweek specializing in the Middle East, North Korea and other foreign conflicts <https://www.newsweek.com/war-water-syria-iraq-turkey-will-next-fight-rivers-report-says-1046349>.Newsweek. 07/27/18)

The **next war in the Middle East could be fought over water as Iraq, Syria and Turkey scramble to assert claims to two vital rivers that run through the region**, according to a new report. Nabil al-Samman, a Syrian expert on international waters, made the case for an upcoming "water war" in an article published Friday by Saudi newspaper [Asharq Al-Awsat](https://aawsat.com/home/article/1344671/%D8%A7%D9%84%D8%B5%D8%B1%D8%A7%D8%B9-%D8%B9%D9%84%D9%89-%D9%85%D8%B5%D8%A7%D8%AF%D8%B1-%D8%A7%D9%84%D9%85%D9%8A%D8%A7%D9%87-%C2%AB%D8%B9%D9%82%D8%AF%D8%A9%C2%BB-%D8%A7%D8%B6%D8%A7%D9%81%D9%8A%D8%A9-%D8%A8%D9%8A%D9%86-%D8%A3%D9%86%D9%82%D8%B1%D8%A9-%D9%88%D8%AF%D9%85%D8%B4%D9%82-%D9%88%D8%A8%D8%BA%D8%AF%D8%A7%D8%AF). The article defines the term as being used to refer in the Mediterranean to "the use of water as a weapon in order to control its sources, or the diversion of water as a commercial commodity controlled by powerful upstream states for political ends." The piece outlines a decades-long history of difficult relations and devastating conflicts that have set the stage for a potential [upcoming crisis between Syria, Iraq and Turkey](https://www.newsweek.com/wars-water-97215). "When the sounds of guns and war drums fade in Syria and Iraq, new tensions may arise because of water, especially in their conflict with Turkey, from which the Euphrates and Tigris rivers flow," the report read. In eastern Syria's Euphrates River Valley, drought and mismanaged government policies [helped fuel support for protests](https://www.newsweek.com/climate-change-helped-create-conditions-war-syria-study-suggests-311199) that eventually morphed into a 2011 nationwide insurrection backed by the West, Turkey and Gulf Arab states. The subsequent insurgency and Syrian military's campaign backed, by Russia and Iran, to retake the country has left critical water infrastructure in ruins. Across the border in western Iraq, 15 consecutive years of war and insurgency following the 2003 U.S. invasion have left a similarly dire situation, but Turkey retains a powerful, controversial hold on the region's natural resources. A member of the U.S.-backed Syrian Democratic Forces, made up of an alliance of Arab and Kurdish fighters, splashes water at Lake Assad, an enormous reservoir created by the Tabqa dam, April 29, 2017. After having taken the dam from ISIS, the group's political wing is negotiating to returning it to the Syrian government's control. Just as the Syrian and Iraqi governments appear to be regaining a grasp of their respective countries, **Turkey has pushed forward with the**[**Southeastern Anatolia Project**](https://www.newsweek.com/2015/05/01/world-will-soon-be-war-over-water-324328.html), an ambitious initiative to build 22 dams and 19 power plants that **could curb water flow into the downstream states by as much as half**. The idea was originally crafted by the modern founder of Turkey, Mustafa Kemal Atatürk—and current Turkish President Recep Tayyip Erdogan has sought to cement the project's completion. For decades, the project stirred tensions between the neighboring countries, but political disputes have prevented negotiations from ever making progress. In addition to differences over the amount of water that would flow into Syria, the two countries have also quarreled over Damascus's claims to Turkey's southwestern Hatay Province and over Syria's alleged protection of Kurdish separatists that have waged war on the Turkish state. After holding talks in 1962, both countries began rounds of negotiations over water distribution that progressed as relations improved when Syrian President Bashar al-Assad took power in 2000. However, Turkey's support for Syrian rebels and ongoing occupation of parts of northern Syria have prevented the two from restarting talks. Syria and Iraq have their own long history of diplomatic failures that played out for decades as opposing factions of the Arab Socialist Ba'ath Party. The two governments also held talks in 1962 and attempted to settle find common ground over the Euphrates River that runs through their countries—and continued to do so through the 1990s. Since the U.S. ouster of Iraqi President Saddam Hussein, relations between Baghdad and Damascus have been enhanced. Iraq has attempted to maintain relations with both Syria and Turkey, but, [like Syria](https://www.newsweek.com/iraq-syria-win-wars-against-isis-us-turkey-will-not-leave-862653), has at times criticized Turkey for military incursions against Kurdish militias in Iraq. In what the article calls "the absence of an Iraqi-Syrian agricultural strategy," Ankara has maintained its dominance over the rivers. As the report notes, Turkey argues it's entitled to more water because its land is more fertile and has wielded control over the flow of the Euphrates and Tigris Rivers in the water-scarce Middle East, similar to the way in which the monarchies of the Gulf have exploited their vast, lucrative reserves of oil. Upon the opening of the Atatürk dam in 1992—a major part of the Southeastern Anatolia Project—the article quoted then-Turkish Prime Minister Suleyman Demirel proclaimed as saying: "The water that flows to Turkey from the Euphrates, Tigris and its tributaries is Turkish...We are not saying to Syria and Iraq that we share their oil resources...They have no right to say that they share our water resources." In Iraq, Turkey's construction of the Ilısu dam means the restarting of a pump at the Mosul Dam—which was recaptured from the Islamic State militant group (ISIS) in 2014—may not be enough to resuscitate the barren fields of the once-luscious Nineveh plains, as [Reuters](https://www.reuters.com/investigates/special-report/iraq-water-nineveh/) reported last month. [The Financial Times](https://www.ft.com/content/82ca2e3c-6369-11e8-90c2-9563a0613e56) further explored earlier this month how Iraq was racing to revamp its aging, damaged irrigation system to make up for anticipated losses in water flow to the Tigris River. In Syria, another former ISIS-held dam has become a major point of talks in the nation's ongoing civil war. The pro-Syrian government campaign has retaken most of the country, leaving only pockets of jihadi and rebel control, along with about a quarter in the hands of the U.S.-backed Syrian Democratic Forces. Unlike the largely Sunni Muslim Arab opposition, the mixed Arab-Kurdish Syrian Democratic Forces have [sought to negotiate with the government](https://www.newsweek.com/us-lost-war-syria-iran-russia-winning-final-battle-674833). On Friday, [a delegation of their political wing went to Damascus](https://www.newsweek.com/kurdish-forces-hold-talks-damascus-1045913) to discuss the transfer of control of key points, [including the Tabqa dam](https://www.newsweek.com/us-allies-syria-prepare-rebuild-ties-assad-after-trump-talk-putin-1029017), which lies on the banks of the Euphrates and Syria's largest reservoir, Lake Assad.

#### Triggers South Asian nuclear war

Baloch’18 (Tayyab Baloch, Asian security expert at Katehon, Katehon think tank is an independent organization consisting of an international network of people - from a wide variety of fields and disciplines - who specialize in the geopolitical, geostrategic and political analysis of world events. The group consists of political thinkers, international relations (IR) researchers, experts in security and counter-terrorism, and journalists concerned with international affairs, geopolitics, ethno-politics and inter-religious dialogue, “ASIAN WATER CRISES IN THE SHADOW OF NUCLEAR WAR”, <http://katehon.com/article/asian-water-crises-shadow-nuclear-war>, April 25, 2018)

The Indian government’s decision to scrap the Indus Water Treaty (IWT) of 1960 unilaterally shocked Pakistan as it failed to build dams on rivers at the lower riparian. This unexpected Indian action came after the Uri attack on Indian soldiers in Kashmir. In fact, Modi’s government in New Delhi is taking every step to isolate and terrorize Pakistan in response to Islamabad’s recent diplomatic effort to highlight the Kashmir issue. India has also become furious on the construction of thousands of dams by China in the Tibet Plateau on the upstream of the Indo-Gangetic Plain. India publicly considers Chinese dams on the upstream end as a water weapon against it. Therefore, India’s current water diplomacy hints that India is trying to unite “downstream” Asian nations to force Beijing to sign a trans-border water sharing treaty to counter its massive damming policies. India’s act of revoking the IWT is part of this effort for diplomatic pressure on Beijing to be accelerated for a new water treaty in the region. Water control in an upstream area could be used as a double-edged weapon against downstream countries. The current geopolitical scenario in South Asia can easily describe how upstream countries are using this in human practice against downstream countries. As China is building dams on freshwater resources in Tibet, the same India is working on hundreds of hydropower projects and dams in Kashmir on Pakistani rivers. Unfortunately, India has the first control of all 6 Indus water rivers of Pakistan which provided strategic advantages to India against Pakistan just as Chinese control over Tibet plateau waters provided strategic advantages to Beijing against other Asian nations. Historically, for the first time after the birth of Pakistan, India used the water weapon by stopping the supply of water from every canal flowing from India to Pakistan on April 1st, 1948. After the continuous protest of Pakistan, India agreed on an interim agreement with Pakistan on May 4th, 1948, but a permanent solution came in September 1960 when both countries signed the agreement known as the Indus Water Treaty. According to this treaty, Pakistan gained exclusive rights to three western rivers, namely the Indus, Jhelum and Chenab, while India retained rights to the eastern rivers, namely the Ravi, Beas and Sutluj. Unfortunately, India has not only built mega dams on Pakistani rivers such as the Indus, Chenab and Jhelum, but is also working to divert Pakistani rivers to India through massive tunnels. The first time that India publicly threatened to revoke IWT, it was India that practically breached the treaty through building disputed dams in occupied Kashmir on Pakistani rivers. In fact, India is working on a strategy to render Pakistan’s link-canal system redundant, destroy Pakistan’s agriculture, which is the country’s backbone, and turn Pakistan into a desert. India has no special rights to the Chenab River, but it has built 14 hydroelectric plants and is building more power projects which will enable it to block the entire water flow of Chenab for up to 20-25 days. This damming policy on the western river Chenab is an open violation of the treaty and provided strategic advantages to India against Pakistan, as these dams have provided India with the opportunity to use water as a weapon of mass destruction through releasing huge quantities of water downstream not only causing damage to standing crops, but also breaking canal systems. The Chenab River provides water to 21 canals and irrigates about 7 million acres of agricultural land in the Punjab province of Pakistan. Although the treaty restricted India from building gates for flushing silt out its dams, it has built gates on the Chenab and Jhelum River. These gates on dams increase Indian manipulation of the river’s flow, of which the Baglihar Dam on Chenab is an example. When India chose to fill Baghliar, it did such exactly at a time when the filling caused maximum damage to Pakistani farmers. According to a report, “Storage of water in Baglihar Dam reduced the flow of water in Chenab River during the sowing period of August to October and badly affected the agriculture sector of Pakistan. Pakistan lost thousands of cusecs of water; farmers could not irrigate their fields due to a shortage of water and resultantly more than 3.5 million agriculture tracts were left barren. The standing cotton, paddy crops of basmati rice of Kharif season in Punjab which were ripe were badly affected because of the absence of water.” Meanwhile, the Indian “Chutak” dam on the River Suru, (a major tributary of the Indus River in Indian-held Kashmir) has also become a direct threat to the Pakistani side of the Silk Road (Karakoram Highway also known as KKH). In the case of a dam collapse or deliberate release of a large quantity of water, the KKH between Basham and Jaglot would be washed out, which is also dangerous for the Pakistani-proposed Bhasha dam. This could also submerge the city of Skardu (a northern city of Pakistan) and its airport. Beside the Chenab and Jhelum rivers, India is also working on dams on the Indus River which can be described as a direct threat to Pakistan’s agriculture, because it is one of the longest rivers of the world which flows from Tibet Plateau and runs 400 km through China and about 300 km in Indian Ladakh and then enters into Pakistan with a total length of 3200 km. All rivers which flow in Pakistan meet with this mighty Indus river reaching its mouth in Arabian sea. A recent study entitled ‘Mountains of Concrete: Dam Building in the Himalayas’ warns that **Pakistan is on the brink of a water disaster**. There is the possibility that its water could plunge to 800 cubic meters per capita annually by 2020 from the current 1,200 cubic meters. Just 60 years ago, 5,000 cubic meters of water was available to every Pakistani citizen. Unlike India, Pakistan is highly dependent on agriculture and the Indus River’s unique irrigation system. Pakistan is 80% dependent on this irrigation. There is no doubt that agriculture is the mainstay of Pakistan's economy, as it accounts for 21% of GDP and, together with agro-based products, fetches 80% of the country’s total export earnings. More than 48% of the labour force is engaged in this sector. Therefore, being an agrarian country, Pakistan’s water issues with India are just as important as the UN’s resolutions on the Kashmir issue. In fact, these two are interlinked, as Kashmir is a lifeline for Pakistan. Hence why three wars between India and Pakistan have been fought over control of Kashmir and its water reservoirs. Pakistan has raised its voice against Indian damming policy on occupied Kashmir on Pakistan’s water. India has already constructed 50-60 medium-sized projects and it plans more than a hundred. This Indian policy shows that India wants to block every drop of Pakistan’s water. Pakistan's water issues with India are about just as important as the resolution of the Kashmir problem. In fact, the two are interlinked. Therefore, the resolution of the water issue should be part and parcel of any process of normalization between India and Pakistan. The Dul Hasti Hydroelectric Project, Salal Hydroelectric Project, Uri Hydroelectric Project - I & II, Kishanganga Hydropower project, Baglihar, Bursar, Kirthai, Sawalkot, Nimoo Bazgo, Dumkhar & Chutak dams and Wullar barrage are disputed dams and projects between Pakistan and India and they are all built on the western rivers to which Pakistan has exclusive rights. After India’s threat to revoke the water treaty, Pakistan should have also looked beyond IWT, because India has already violated it through building disputed dams on Pakistan’s water. The World Bank arbitration process should be reactivated to immediately stop the construction of disputed dams on the Indus, Chenab and Jhelum rivers. Like China, South Asian and East Asian countries are also facing water scarcity and all are dependent on Chinese control of the Tibet Plateau for freshwater. Tibet is the source of ten major Asian rivers upon which 25 percent of the world population depends. Therefore, it is known as Asia’s lifeline. But unfortunately, China’s massive damming policy in Tibet has become an open threat for severe water shortages in South Asia and Southeast Asia. Currently, China has 87000 dams and most of them are constructed in Tibet. What’s more, it has plans to build more dams and hydropower projects in the future to fulfill the needs of the country’s water-scare areas. Chinese dam building and water division plans along the Yarlung Zangbo, also known as the Brahmaputra in India, are a source of tension between China, India and Bangladesh. Despite the dams on South Asian Rivers, China is also working to build 21 more dams in addition to the 7 dams it has already built on the upper stream of the Mekong River (known as the Lancang in China) which is the main source of water for Southeast Asian nations. The Mekong crosses through Qinghai, Tibet, and Yunnan before flowing into Myanmar, Laos, Thailand, Cambodia, and Vietnam. Four riparian (downstream) countries, Laos, Cambodia, Vietnam and Thailand, had constituted the intergovernmental Mekong River Commission (MRC) to avoid conflict between Mekong basin countries through the promotion of sustainable management and water development for mutual benefit, while China has an observer status in MRC. China and the MRC directly dispute the construction of dams on the upper stream, but China has rejected all downstream concerns. However, due to diplomatic pressure by the Association of Southeast Asian Nations (ASEAN), China did agree to the Lancang-Mekong cooperation mechanism (LMCM) last year in November. International laws and conventions provide the first rights to water use to downstream countries on trans-border rivers, but unfortunately, China is the only country which does not adhere to this. Its damming policy has hinted that China is working only to fulfill its own national interests in facing severe water shortage challenges. One quarter of Chinese territory consists of deserts while, as a whole, it is an extremely arid country with the world’s largest population. But on other side, all Tibetan rivers which flow into South Asia and Southeast Asia have the most populated basins with mouths running into the South China Sea, the Bay of Bengal, and Arabian Sea. A Russian professor at Tomsk Polytechnic University and chief researcher of the Institute of Petroleum Geology and Geophysics, Stepan Svartsev, told TASS that water is a resource equal in value to oil, gas, and gold, and, sooner or later, we will start to sell it. We already sell it in stores and more and more people buy it. Water is becoming a commodity, and with time it will become more valuable than oil. We should be ready for this. It is also predicted that future wars will be fought over water and, unfortunately, **all border disputes between the Asian nuclear triangular (China, India and Pakistan) are based on water control reservoirs.** Now, as the world is tilting towards total war, the **tension in South Asia has increased as Pakistan threatens India with nuclear war** for blocking/diverting rivers which are directly linked with Kashmir. Moreover, Pakistan is already being subjected to Indian Hybrid War because it has given land access to China to reach the Arabian Sea, which is the mouth of Indus River. Indian efforts to counter China can easily be observed, as in its successful attempt to split up SAARC and bring the new cold war to South Asia. In fact, India is teaming up with South Asian and Southeast Asian countries against China by fueling water disputes. Hence why in South Asia, Bangladesh, who is totally dependent on Indian rivers, and Bhutan, who also has disputes with China, are supporting Indian diplomacy in isolating Pakistan, a move regionally aimed to counter China. Meanwhile, Pakistan, which is also fighting in the “Chinese war” in South Asia, has become the victim of the Indian water war against China. Chinese control over the roof of the world has given a unique, strategic position to Beijing to secure its water supply and future needs unilaterally. But in Pakistan’s case, the Indian threat to scrap the IWT unilaterally hints that India is going to adopt same of China’s water policies against Pakistan, as both have signed bilateral water sharing agreements for trans-border rivers. Unfortunately, Pakistan is living in a fool’s paradise if it really thinks India cannot annual and render the treaty void. In fact India has not only violated the treaty, but now it has continued to pursue its dream of making Pakistan docile in order to realize Indian ambitions. It is high time that China revisit its policy on Tibetan freshwater rivers upon which the populated Asian countries are dependent for their basic necessities and livelihoods. China still has not signed any multilateral treaties regarding shared tans-boundaries rivers, nor did it sign the 1997 UN Watercourses Convention that set the legal framework for rules and co-operation between more than 100 nations and their relevant international watercourses. On the one hand, China is working towards peaceful development and has created a “win-win” scenario for the revival of the ancient Silk Road through its proposed “Belt Road” initiative. But, on other side, it is going to block freshwater rivers which were part of ancient Silk Road. In other words, all Tibetan rivers are the branches of China’s Silk Road. Strategic control over Asian waters has also provided China with access to reach its maritime routes in the South China Sea, and Indian and Arabian oceans, which are the mouths of Tibetan rivers. Being the big brother of Asia, China should adopt a give-and-take policy and even help its friendly neighbor Pakistan through formulating multilateral or bilateral trans-border water co-operation rules and regulations, because Pakistan has become the victim of the same damming policy which the Chinese have launched in Tibet. A give-and-take policy could also help China clear its maritime routes involving the Bay of Bengal and South China Sea. In fact, the ball is in the Chinese court as it has appeared on the world stage as a leader of the multipolar world. But now, it is time to give up its selfish policy for the betterment of the multipolar nations of ASEAN and SAARC. If China can sign a shared water trans-border treaty with Russia for the Siberian Mighty Amur River’s water, then why can it not sign such treaty with Asian nations? It is true that every country in world must secure its own interests. But the massive damming policies of such Asian giants as China and India testifies to the fact that, sometimes, these individual interests must be sacrificed for the sake of mutual benefit and positive regional development. **If China is interested in saving Asia from nuclear war, it must come to the table to solve water disputes in Asia**. China has also become Pakistan’s last hope to save it from turning into a barren desert.

### FW

#### The standard is maximizing expected wellbeing.

#### Prefer it:

#### 1] Actor specificity:

#### A] Aggregation – every policy benefits some and harms others, which also means side constraints freeze action.

#### B] No act-omission distinction – choosing to omit is an act itself – governments decide not to act which means being presented with the aff creates a choice between two actions, neither of which is an omission