### 1AC – Framing – Util

**The standard is minimizing material violence.**

**Prefer:**

**[1] Pleasure and pain are intrinsic value and disvalue**

**Blum et al. 18**

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**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10]. Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14]. Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals. Evolutionary theories of pleasure: The love connection BO:D Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it. It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring. Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding. There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health. Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage. Finding happiness is different between apes and humans As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure. Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even **produce the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered. Desire and reward centers It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation. In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41]. Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42]. Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans. In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45]. Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations. Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50] In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders. In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS. Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### [3] Extinction First –

#### [a] Forecloses future improvement – we can never improve society because our impact is irreversible

#### [b] Turns suffering – mass death causes suffering because people can’t get access to resources and basic necessities

#### [c] Moral uncertainty – if we’re unsure about which interpretation of the world is true – we ought to preserve the world to keep debating about it

### 1AC – Plan

#### Plan: The Republic of India should ban the appropriation of outer space by private entities.

#### The plan is enforced both internationally with UNCOPUOS and domestically through enforcement and liability regimes – solves best

* UNCOPUS is given power over private entities – 3 separate branches formed
* UNCOPUS = United Nations Committee on the Peaceful Uses of Outer Space
* Cost allocation is proportional to countries’ space impact
* Domestic policies are passed uniformly
* Enforced with a variety of sanctions
* States with more defined space policies can diplomatically pressure others for uniformity

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A. Empower UNCOPUOS or a New International Enforcement Body with Increased Authority over Private Actors The space industry will likely benefit from a centralized enforcement authority that has actual regulatory, adjudicative, and arbitral powers.196 In fact, Article XI of the Moon Agreement arguably calls for such an organization to create and enforce laws related to commercial activity.197 Additionally, several countries have already advocated for a permanent specialized United Nations agency to oversee outer space activities, which some have deemed the “World Space Organization” (“WSO”).198 However, UNCOPUOS has yet to seriously consider a new overseeing body.199 Nonetheless, UNCOPUOS and the international space law community should either (1) create a separate U.N. body that enforces international space law on public and private actors, or (2) enhance the authority of UNCOPUOS to do the same. One particular structure that the WSO can follow is that which is already established by other U.N. specialized agencies: it may hold an Assembly, a Council, and a Secretariat.200 The Assembly may create policy, adopt amendments to international agreements, and ratify regulations and standards for commercial space activities. The Council may serve as an executive body that promotes cooperation among member states and international organizations.201 Commercial space interests may be adequately represented on this Council by allowing representation for all space-faring state members.202 Also, representation from state members that are not the primary producers of commercial space activity, but serve as geographic hotspots for launching space activities, should be adequately represented on this board as well.203 Finally, the Secretariat may facilitate administrative support for WSO’s undertakings.204 Additionally, the WSO should incorporate a dispute resolution organ that can hold accountable the actions of private actors through their respective member states. It should have the maximum enforcement capacity, such as by requiring that all state members adhere to the tribunal’s rulings. It should grant itself jurisdiction over private actors and allow these actors to bring a claim before the judicial organ as well, so long as the member states recognize the competence of the tribunal to consider the matter. Allowing cases concerning individual and private actors has already been established by many international courts and tribunals, such as the Permanent Court of Arbitration and various international human rights courts.205 As commercial space activity only continues to grow, the WSO should provide an adequate means for adjudicating claims resulting from these activities. Problems will undoubtedly arise from creating the WSO. Developing countries or states without a strong presence in outer space may contend that this framework will be inconsistent with the object and purpose of the Outer Space Treaty, which declares that outer space is to be the “province of all mankind.”206 Therefore, assurances must be made that developing countries or non-space faring nations will benefit from this organization.207 For instance, the organization may help facilitate commercial space activities that would benefit these countries by providing greater technology and services. Technological advances in satellite imagery may help these countries mitigate environmental damage and warn them of impending natural disasters.208 Another issue to address is how to establish an equitable cost allocation plan for this new organization. One idea is to allocate contributions based on the amount of tonnage launched per year by U.N. Member States.209 Another idea is to emulate the cost allocation structure already established by the U.N. General Budget.210 Regardless of the cost allocation structure provided, it should equitably reflect the contributions that space-faring nations make and ensure that they front the bulk of the costs.211 As an alternative to going through the process of creating a new legal entity, UNCOPUOS could use its own established regulatory framework and expand its own powers to create a similar regulatory framework as described above. This seems like an intuitive step for a U.N. Committee that is already among the largest committees of the United Nations212 and is currently the “only intergovernmental platform for fostering global governance of outer space activities.”213 However, problems associated with expanding UNCOPUOS’s role would undoubtedly arise. In particular, there is actually no natural progression in transforming a U.N. General Assembly committee into an enforcement body since the General Assembly does not have enforcement authority under the U.N. Charter. The U.N. Charter may need to be amended to provide the General Assembly with such enforcement authority if expanding UNCOPUOS’s role were to actually be realized. Nonetheless, these barriers to greater enforcement are surmountable, assuming that the member states can defy the complex political tensions that exist within the U.N.214 Creating the WSO or increasing UNCOPUOS’s powers will provide a forum for member states and private actors alike to facilitate space programs and should be reconsidered by UNCOPUOS. B. Promote Firmer and More Uniform Standards Among Domestic Laws To some extent, all five international space treaties rely on states to implement their own domestic laws to fulfill the treaties’ obligations. The strength of enforcement lies strongly with the strength of domestic space law to enforce itself upon private actors. National space law should particularly focus on (1) creating firmer and more uniform standards for the national registration requirements of space objects and (2) broadening avenues of recourse when private space activity causes harm. However, individual states may lack the incentive to increase regulation, as it may reduce space activity launching from that particular state.215 Time will tell whether these space-faring nations will overcome this collective action problem by placing the need for the safe use of outer space before individual state interests. While the Outer Space Treaty and the Registration Convention imparted an obligation on States Parties to implement registration requirements for space objects within their domestic law, they failed to “identify the contours of any particular licensing regime.”216 This has caused an unevenness in registration requirements that have led to confusion and the failure to report space objects in outer space, as described infra. Additionally, this lack of conformity in national law has allowed private actors to travel to more lenient states to launch their objects into space, also as described infra. For states to authorize space activities and provide greater supervision over them, all space-faring nations should establish a uniform licensing and regulatory regime with adequate enforcement measures within them.217 To create uniformity among domestic registration requirements for space objects, the International Law Association (“ILA”) issued a model law for national space legislation.218 Notably, ILA’s model national law suggests that all national registrations should include certain information, such as the registration number of the space object, date and location of the launch, orbital parameters, and the function of the space object.219 ILA’s model national law also lists extensive requirements for authorizing the space activity, including that the space activity be compatible with public safety standards, foreign policy, national security, and other standards.220 This would prevent the situation created by Swarm, where it took advantage of India’s lenient safety standards to launch its hard-to-detect satellites.221 Creating uniform standards for registration, including safety standards, would mitigate the risk of private actors forum shopping for the most lenient states from which to launch their space objects. States should also implement stronger enforcement mechanisms to motivate compliance with their respective national space laws and to harmonize their laws with other states. States’ enforcement mechanism schemes vary from sanctions such as license suspension or revocation, to fines and imprisonment. As for license suspension and revocation, the reasons for license suspension or revocation vary significantly. For instance, in the United Kingdom, the Netherlands, South Korea, China, and many other major space-faring nations, a license may be revoked if the licensee conducts actions that endanger national security.222 Meanwhile, South Korea’s additional rule, that a license may be suspended if a launch has been delayed for greater than one year without cause, is not as widely adopted.223 South Korea also imposes heavy fines (up to ₩50 million , or approximately U.S. $44,387) and long sentences (up to five years in prison) for an individual who launches without a license. In contrast, France does not impose any sentence for launching a space object without authorization, but does impose a fine of up to €200,000 (or approximately U.S. $257,000).224 Some states (such as India and Switzerland)225 have failed to enact any legislation concerning compliance to any safety and registration standards. In these cases, perhaps states with comprehensive compliance schemes (such as the United States and Australia)226 may diplomatically pressure less regulated states to impose basic safety and registration regulations. At a minimum, all states should institute a regulatory agency that holds the jurisdiction to license space activities and enforce licensing and safety protocols.227 In addition to standardizing registration requirements and compliance mechanisms, more states should provide adequate liability mechanisms for private actors when the private actors’ space activity causes harm. Currently, the Liability Convention puts total fault on a State Party for all harm caused by objects launched from that state. To hold private actors accountable for their actions, and to mitigate the risks of a “tremendous public payout” for private actions in space,228 governments should implement comprehensive domestic regulations of “safety and financial responsibility for private activities in space.”229 Some states have already done so, but this liability framework is not universal.230 All states should place liability on the operator of the spacecraft, as is suggested by ILA’s model national law.231 In relation to imposing liability on the operator of the spacecraft, all states should require a certain level of insurance and indemnification to allow victims to be adequately compensated. While imposing insurance and indemnification standards may seem like a natural progression in imposing liability standards, this requirement is currently missing from many state’s domestic space law.232 In crafting insurance and indemnification laws on private space-faring actors, however, states should be careful not to create such a high liability risk to these actors that it would threaten the development of space innovation in this relatively nascent era of space commercialization.233 Thus, liability arising out of space activities should be limited.234 While domestic laws are not “the perfect solution” for fixing gaps in enforcement, “they are easier to enact and more enforceable than any comparable international space law.”235 Increasing the strength of national space law as well as the uniformity among different states’ national space legal regimes would undoubtedly result in greater enforcement upon private actors. Additionally, increased domestic regulation may in turn inspire the further development of customary and conventional international space law.236

### 1AC – Adv – India Rise

#### Private Sector is growing and *key* for space exploration growth – the ISRO is a *facilitator* not a creator

Gill 21[ Prabhjote writes about technology, science and economics. Before Business Insider, she's worked with Tech Radar where she covered the newest gadgets and the most recent trends of the tech world. Business Insider “ISRO will transform in 2021 as India pumps big money to draw in startups for the 'second space age'” 2/4/2021 <https://www.businessinsider.in/science/space/news/isro-will-transform-in-2021-as-india-pumps-big-money-to-draw-in-startups-for-the-second-space-age/articleshow/80683054.cms> ] //aaditg

* Crew Dragon = SpaceX capsule

The Indian Space Research Organisation (ISRO) is turning into a facilitator as it looks for the private sector to play a bigger role in space technology in the ‘second space age’. Despite the COVID-19 cash crunch, the Budget 2021-22 has not deprioritised the space sector with a 3.48% increase in expenditure allocation. Money earmarked for New Space India Limited — the Indian Space Research Organisation’s commercial arm — saw its budget increase 138 times. According to space policy expert Chaitanya Giri, the government is looking to monetise ISRO's intellectual property and bring in fresh revenue. The Indian Space Research Organisation (ISRO) is on the road to transforming itself from an end-to-service provider for India’s space programme into a facilitator. The latest budget allocation is a signal that the Indian government is serious about giving private players a serious role In the ‘second space age’. Despite the cash crunch caused by the COVID-19 pandemic, India did not cut back on the money for the space programme. In fact, the outlay increased by 3.5%. More importantly, bulk of the funds will be routed to a new entity, New Space India Limited (NSIL). ISRO will transform in 2021 as India pumps big money to draw in startups for the 'second space age' Budget 2021-22 allocation for the Department of SpaceBI India NSIL, the commercial arm ISRO saw a 138 times jump in allocation. The money that earlier went from the Department of Space (DoS) to ISRO, will now be routed to NSIL, which will then authorise the participation of private players. Year NSIL expenditure budget 2019-20 ₹10 crore 2021-22 ₹700 crore “That means that the government is super serious about commercialising whatever IP (intellectual property) it has under its kitty and just monetising that. It’s a departure from the mindset of yesteryears where ISRO was only there to cater to the government’s requirements,” Chaitanya Giri, space policy expert and fellow with think tank Gateway House, told Business Insider. Doubling down on space sector reforms The push for private sector participation in the space sector is a strategic necessity, according to Giri. “For our commercial sector to get started on this front, it will need governmental space agency ISRO to get things done at its end first,” he points out. India’s edge in the global market was its ability to keep things cheap. An advantage that has now been diluted by the emergence of companies like Elon Musk’s SpaceX who have made launching satellites more competitive. Its Crew Dragon capsule is another indication that the second space age will be run by the commercial sector. “They will be building the rockets, launch services, building space capsules and providing logistics,” explained Giri. NSIL is set up, but what comes next? Last year, in May, Finance Minister Nirmala Sitharaman announced major reforms for the space sector as a part of the Atma Nirbhar package — including the setting up of the Indian National Space Promotion and Authorisation Centre (IN–SPACe). “In-SPACe was supposed to be formed by the end of last year — by December 2020 — so it’s getting slightly extended. But, I’m pretty sure that it will be completely established within the next two months,” Pawan Kumar Chandana, co-founder of Skyroot Aerospace told Business Insider in a pre-budget interaction. According to Giri, the Indian Space Research Organisation (ISRO) has always built its own rockets and satellites. But, that will no longer be the case. “They want to include all of these small startups that have emerged and start giving them contracts according to their niche,” said Giri. In-SPACe opens up ISRO’s treasure trove of satellite data to private players and will allow start ups to use the apex space agency’s testing facilities to develop their own technologies. The challenge lies in setting the price points for this use. “Like always, when it comes to finance, every rupee counts when it comes to the government… And, the government's mandate is to encourage the private sector, so they cannot charge it as high as they may want to,” Chandana explained. DataLabs by Inc42 shows that there are around 120 active startups working in the space sector right now. Most of them emerged in or after 2014.

**Indian Space growth *bolsters* US relations and engagement with Quad – private sector engagement *proves* its reverse casual**

**Mohan 10/13** (Raja Mohan, a columnist at Foreign Policy and the director of the National University of Singapore’s Institute of South Asian Studies, October 13, 2021, Foreign Policy, India’s Space Program Inches Closer to America and the Quad, https://foreignpolicy.com/2021/10/13/india-modi-space-program/)//ww pbj + aaditg

* Quad = Quadrilateral Security Dialogue (Australia, Japan, US, India)

Indian Prime Minister Narendra Modi wants to privatize one of his country’s most zealously guarded governmental monopolies: the space sector. In a major speech at the inauguration of the Indian Space Association, a new industry grouping this week, Modi called for a new approach, where, he said, the private sector is free to innovate and the government becomes an enabler. The announcement was a significant step in Modi’s efforts to pull private resources into India’s space sector, which has rapidly fallen behind global peers as space competition heats up in telecommunications, resource exploration, planetary expeditions, and defense. What’s more, **Modi’s reorientation of India’s space policy is yet another indication of the profound shift in New Delhi’s geostrategic orientation.** Modi’s government has been exploring common ground on space security issues bilaterally with the United States and also plans to work with India’s partners in the Quadrilateral Security Dialogue—Australia, Japan, and the United States—to leverage their collective space capabilities. For now, these would include areas like monitoring climate change, managing disasters, and mapping precious natural resources from space. For the first time, New Delhi is also ready to work with Washington and its allies on setting new global norms to manage space, including rules for commercial competition and the use of space for defense. Although India was among the first nations in the developing world to build an impressive space program, it has not kept up with changing global trends. One is the dramatic expansion of space commerce since the start of the 21st century. The other is the private sector’s growing role in space activities. On both fronts, New Delhi has been unprepared. India now accounts for barely 2 percent of global space commerce, estimated to be worth around $440 billion today. The sector has been expanding at an explosive pace and is expected to reach more than $1 trillion in annual revenues by 2030, according to some estimates. New Delhi has set its sights on garnering at least 10 percent of this business by the end of this decade. In the United States, SpaceX CEO Elon Musk’s company has broken the last of the government monopolies: the difficult business of launching manned rockets. Washington has been coddling SpaceX with lucrative contacts, hoping private companies’ growing role will help reinforce traditional U.S. primacy in space. The Chinese government, too, is finding ways to bring greater innovation to space projects by allowing more private activity and promoting competition between different space-sector entities. India seemed hesitant to go down the private sector route—at least, until now. India’s space program, like its nuclear energy program, began soon after the country’s independence and was driven by considerations of national prestige and economic and technological development imperatives. Since then, Indians have had to put up with much ridicule about their poor, under-resourced country shooting into space. But today, few can deny India’s space program’s considerable achievements, including in satellite construction and launching, telecommunications, and terrestrial observation from orbit for national development and defense. If anything, international skepticism has reinforced India’s new techno-nationalism. The flag wrapped around the space program became even tighter beginning in the mid-1970s, when India faced growing international sanctions, including limits on technology transfers, as it was developing nuclear weapons. All along, any modest step in the space program was a cause for popular celebration. Before sanctions hit, India enjoyed expansive cooperation in space technology with the West; subsequently, it partnered with the Soviet Union. India’s forced international isolation increased the domestic prestige of the space program and ensured a steady flow of state funding as well as considerable autonomy for its functionaries to set goals and define priorities. This combination of external pressure and uncritical domestic support meant there was little incentive for reform and regeneration. As a result, India found itself incapable of scaling up its activities amid the unfolding boom in space commerce. The external situation began to change with the historic civilian nuclear initiative pushed by then-U.S. President George W. Bush beginning in 2005, which facilitated India’s reconciliation with the global nonproliferation order, brought an end to sanctions, and opened the door for international cooperation with India’s civilian nuclear and space programs. Domestic change, however, has been much slower. India’s new space policy began to take shape in June 2020, when Modi announced the first steps to open up India’s space sector to private capital. The new policy mandated that space assets and technologies developed by the Indian Space Research Organisation and other government agencies be accessible to the private sector. New Delhi also announced the creation of the Indian National Space Promotion and Authorization Center and appointed a former private sector executive to head it. A new government company called NewSpace India will help reorient the Indian space program to a demand-driven model. Until now, India’s space activity was constrained by what government agencies chose and were able to develop. New Delhi now wants commercial demand for space services to drive the expansion of capabilities. The government is now considering a variety of policy measures that will provide a new regulatory framework for space activity. The first two policy initiatives are expected to focus on space communication and remote sensing. New Delhi’s cooperation with Washington may soon be reinforced by strong U.S. company participation in growing India’s space capabilities and commerce. Although there is much enthusiasm within India’s space industry about Modi’s latest steps to liberalize the space sector, there are also deep concerns that his government will be too slow in translating political commitments into policy actions. Transitioning from a government monopoly to significant private sector participation will face many obstacles, including a cumbersome approval process, a lack of coordination among different government agencies, and continuing temptation to regulate rather than promote. That said, Modi has been bold in opening up the government’s science and technology programs, which had long been considered absolutely no-go areas for private companies. Modi began his first term in 2014 with a vision of radically reforming India’s state-heavy economy, brandishing the slogan that government “has no business to be in business” and promising “minimum government and maximum governance.” But he found it hard to overcome entrenched political resistance in a country with a long history of economic populism and obstruction by India’s bureaucrats. He is beginning to have some success in the second term. Last week’s re-privatization of Air India 68 years after it was nationalized is a major landmark and likely to quicken the pace of public sector divestment. India’s liberalized space sector at home has been coupled with greater engagement with India’s partners in the Quadrilateral Security Dialogue (known as the Quad) on space security, abandoning India’s traditional go-it-alone approach. Bilateral U.S.-Indian conversations on space security cooperation that began under the Trump administration now appear to be close to some concrete steps. When Modi and U.S. President Joe Biden met in Washington last month, the two sides agreed to finalize an agreement on space situational awareness by the end of this year. The agreement is about monitoring and exchanging information on the rapidly growing cloud of objects in near-Earth space, including satellites, disused objects known as “space junk,” and natural bodies. The objective is to keep space navigable as the world’s commercial and military stakes rise.

#### Indo-US space alliance antagonizes China – its perceived as a security threat and escalates tensions

Hicket 17 (Cameron Hickert (Class of 2017) is from the United States of America, and graduated from the University of Denver. Space Rivals: Power and Strategy in the China-India Space Race August 14, 2017, Schwarzman Scholars, <https://www.schwarzmanscholars.org/events-and-news/space-rivals-power-strategy-china-india-space-race/)//ww> pbj

Yet in light of regional power politics, deep technological cooperation – particularly regarding space tracking capabilities – would be imprudent for the United States. Due to the current political climate between the U.S. and China in regards to space cooperation, the partnership with India would appear negatively. This is also true against the backdrop of South China Sea involvement in which the U.S. is currently a factor, as well as ongoing border disputes between China and India. Because China sets such a strong emphasis on the power implications of the regional space order, as well as the reality of the military-civilian dual uses of space technology, stronger U.S.-India cooperation on this front would almost surely antagonize Beijing. This is in contrast to India’s approach, which finds a more solid grounding in the economic aspects of the regional space race. The implications of U.S.-India technological cooperation would be a heightened risk environment in the region, and potentially a more belligerent China on security issues; both of these would be negative outcomes for the U.S., and would cause India more risk. It would also escalate the security and military aspects of the regional space race to a new level, stirring tensions and undermining the possibility of enhanced regional cooperation in the near future.

Political ramifications outside the region are also possible, as China might seek to block India from the sort of partnerships it has been developing with Europe and Russia. Although this would not be a problem as of now – India does not seem intensely focused on space station access or capabilities – it would crystallize an environment unfriendly to burgeoning Indian capabilities in the coming decades. Avoiding technological transfer to both China and India would also enable the U.S. to avoid growing any perceived role in the India-Pakistan relationship, in which both nations would resent any technological support provided to the other. U.S. technological assistance to India would irk Pakistan, and the China-Pakistan relationship could produce anti-American sentiment in India if U.S. technological assistance to China were to seep into SUPARCO’s hands. Finally, because the space industry in India is still in its early stages and is tightly interwoven with commercial interests, the risks that U.S. technology shared in partnership with India then disseminate to actors and areas unfavorable to the United States is a stark possibility. Favoring people-to-people and political partnerships with China above technological cooperation with India may appear to undercut positive momentum built under the U.S.-India Civil Nuclear Agreement, but that is not the case. Similar to its economy- focused approach to space-related developments, India continues to uphold economic success as its core goal. This not only means the civil nuclear deal the U.S. Congress ratified in 2008 may not have earned the U.S. as much pull as some had expected, but also that India is unlikely to sabotage economic ties with China on behalf of U.S. interests. The year after the framework for the nuclear deal was announced, China and India declared China-India Friendship Year. Even after India participated in some military exercises in the South China Sea upon signing a joint communiqué with the U.S. stating “the importance of safeguarding maritime security and ensuring freedom of navigation and overflight throughout the region, especially in the South China Sea,” India’s Prime Minister Narendra Modi made it extremely clear that his first, second, and third priorities were the advancement of India’s economy. The regional space race in Asia is alive and well, with China and India developing an increasingly fast-paced rivalry. Within this context, there exists clear differences in approaches between the two nations: China is open in its power-based rationale (including both hard and soft power) for the space program, which is targeted at both domestic and foreign audiences, while India is much more circumspect and technical in its official rhetoric and strategy. These dissimilarities make sense within the frameworks of the existing strengths and shortfalls of each nation’s space program, and also drive the future aims of both nations as they continue to develop a space program encompassing military, economic, and scientific characteristics. The U.S., as the global space superpower, is always a factor in this competitive dynamic, and as such must be deliberate in its approach.

#### Tensions uniquely high right now – relations shouldn’t be allowed to sink

Pollard 21 [ Ruth Pollard is a columnist and editor with Bloomberg Opinion. Bloomberg “China and India Relations Shouldn't Be Allowed to Sink Any Lower” 10-11 – 21 <https://www.bloomberg.com/opinion/articles/2021-10-11/china-india-and-pakistan-are-raising-temperatures-along-their-disputed-borders> ] //aaditg

To be facing tension on both fronts — and with no diplomatic levers left to pull — is not a great place for India to find itself coming out of a punishing second Covid-19 wave and the accompanying economic slowdown. Despite a couple of high-profile summits, the last one in 2019 in the southern Indian state of Chennai, Prime Minister Narendra Modi and President Xi Jinping have failed to find common ground. Instead, notes Ian Hall, deputy research director at the Griffith Asia Institute and author of a book on India’s foreign policy under Modi, China continues to apply more and more pressure, both along the border, and in regular online onslaughts critical of New Delhi’s military stance and its deepening ties with Washington. Nothing Modi has done to try to change that dynamic has worked. However, India is not alone. Hall says Japan, Taiwan, Australia and, of course, the U.S., are all dealing with the challenge of an increasingly assertive China. Foreign Minister Subrahmanyam Jaishankar told his Chinese counterpart Wang Yi last month that bilateral ties will only move forward once there’s troop disengagement from the border areas. But each time India pushes back, China responds with fresh incursions. Opinion. Data. More Data. Get the most important Bloomberg Opinion pieces in one email. Email Enter your email Sign Up By submitting my information, I agree to the Privacy Policy and Terms of Service and to receive offers and promotions from Bloomberg. Just last week, there was a minor face-off between the two sides in Arunachal Pradesh. Though the situation was quickly resolved, it added to the tensions in the lead up to Sunday’s unsuccessful talks. In August, more than 100 Chinese soldiers briefly entered Indian territory in the Himalayan state of Uttarakhand. Military experts say that as both sides expand their troop numbers and aggressively patrol, the chances of a miscalculation leading to another set of deadly clashes increases. Beijing’s abandonment of decades of established protocols agreed with New Delhi along its disputed border is contributing to alarm across the Indo-Pacific. Other episodes in the region include the increasing sorties into Taiwan’s air-defense-identification zone and the expanded deployment of ships into disputed areas of the South China Sea. No one has found the magic formula for dealing with China’s expansionism while maintaining restraint. India is just the latest nation to be tested, and the jury is out on whether relations have hit their lowest point since the border war of 1962 or if there’s still further to fall.

#### India China war escalates nuclear.

Mizokami ’21 [Kyle Mizokami, 1-16-2021, "A Chinese-Indian Nuclear War Would Ruin the Whole Planet," National Interest, <https://nationalinterest.org/blog/reboot/chinese-indian-nuclear-war-would-ruin-whole-planet-176573>] // akhileshp

Still, China does not necessarily need tactical aircraft to do great damage to India. China could supplement its aerial firepower with ballistic missiles from the People’s Liberation Army Rocket Forces. The PLARF overseas both nuclear, conventional and dual-use ballistic missiles, and could conceivably move up to two thousand short- and medium-range DF-11, DF-15 and DF-21 ballistic missiles into positions adjacent to India. These missiles could be used to blitz Indian strategic targets on the ground, at the cost of making them unavailable for contingencies in the South and East China Seas. Meanwhile, India’s air forces are in a better position to contest the skies than their Chinese counterparts. While the war would take place on China’s sparsely manned frontier, New Delhi is only 213 miles from the Tibetan frontier. India’s air fleet of 230 Su-30Mk1 Flankers, sixty-nine MiG-29s and even its Mirage 2000s are competitive with or even better than most of China’s aircraft in theater, at least until the J-20 fighter becomes operational. India likely has enough aircraft to deal with a two-front war, facing off with Pakistan’s Air Force at the same time. India is also fielding the [Akash medium-range air defense missile system](http://thediplomat.com/2015/05/revealed-indias-newest-air-defense-system/) to protect air bases and other high-value targets. While India could be reasonably confident of having an air force that deters war, at least in the near term, it has no way of stopping a Chinese ballistic-missile offensive. Chinese missile units, firing from Xinjiang and Tibet, could hit targets across the northern half of India with impunity. India has no ballistic-missile defenses and does not have the combined air- and space-based assets necessary to hunt down and destroy the missile launchers. India’s own ballistic missiles are dedicated to the nuclear mission and would be unavailable for conventional war. The war on the ground between the Indian and Chinese armies might at first glance seem like the most decisive phase of the war, but it’s actually quite the opposite. Both the western and eastern theaters are in rugged locations with little transportation infrastructure, making it difficult to send a mechanized army through. Massed attacks could be easily stopped with artillery as attacking forces are funneled through well-known valleys and mountain passes. Despite the enormous size of both armies (1.2 million for the Indian Army and 2.2 for the Chinese Army) fighting on the ground would likely be a stalemate with little lost or gained. The war at sea would be the decisive front in a conflict between the two countries. Sitting astride the Indian Ocean, India lies on China’s jugular vein. The Indian Navy, with its force of submarines, aircraft carrier INS Vikramaditya and surface ships could easily curtail the the flow of trade between China and Europe, the Middle East, and Africa. It would take the Chinese Navy weeks to assemble and sail a fleet capable of contesting the blockade. Even then, the blockade would be hard to break up, conducted over the thousands of square miles of the Indian Ocean. Meanwhile, shipping to and from China would be forced to divert through the western Pacific Ocean, where such diversions would be vulnerable to Australian, Japanese, or American naval action. 87 percent of the country’s petroleum needs are imported from abroad, particularly the Middle East and Africa. [China’s strategic petroleum reserves](http://www.businessinsider.com/biggest-strategic-petroleum-reserves-countries-2017-3), once completed sometime in the 2020s, could stave off a nationwide fuel shortage for up to seventy-seven days—but after that Beijing would have to seek an end to the war however possible. The second-order effects of the war at sea would be India’s greatest weapon. War jitters, the shock to the global economy, and punitive economic action by India’s allies—including Japan and the United States—could see demands for exports fall, with the potential to throw millions of Chinese laborers out of work. Domestic unrest fueled by economic troubles could become a major problem for the Chinese Communist Party and its hold on the nation. China has no similar lever over India, except in the form of a rain of ballistic missiles with high-explosive warheads on New Delhi and other major cities. A war between India and China would be nasty, brutal and short, with far-reaching consequences for the global economy. The balance of power and geographic constraints means a war would almost certainly fail to prove decisive. Both sides have almost certainly concluded this, which is why there hasn’t been a war for more than fifty years. We can only hope it stays that way.

**Nuclear war causes extinction through winter, firestorms, EMP blasts, ozone damage, and meltdowns**

-Immediate death -Climate destruction spurring an ice age (Nuclear winter) via nuclear firestorms and smoke -Ozone collapses -2 Billion insta-die in famine -kills biodiversity -Meltdowns and grid collapse via EMPs -Remaining fallout

**Starr 14** {Steven, Senior Scientist for Physicians for Social Responsibility, Director of the Clinical Laboratory Science Program (Missouri), commentator in the Bulletin of the Atomic Scientists and the Strategic Arms Reduction, Associate member of the Nuclear Age Peace Foundation, “The Lethality of Nuclear Weapons: Nuclear War has No Winner,” Global Research: Centre for Research on Globalization, 6/5, http://www.globalresearch.ca/the-lethality-of-nuclear-weapons-nuclear-war-has-no-winner/5385611}

Nuclear war **has no winner**. Beginning in 2006, several of the world’s **leading climatologists** (at Rutgers, UCLA, John Hopkins University, and the University of Colorado-Boulder) published a series of studies that evaluated the long-term environmental consequences of a nuclear war, including baseline scenarios fought with **merely 1%** of the explosive power in the US and/or Russian launch-ready nuclear arsenals. They concluded that the consequences of even a “small” nuclear war would include **catastrophic disruptions** of global climate[i] and **massive destruction** of Earth’s protective ozone layer[ii]. These **and more recent studies** predict that global agriculture would be so negatively affected by such a war, a global famine would result, which would cause up to **2 billion people to starve to death**. [iii]¶ These **peer-reviewed** studies – which were analyzed by the **best scientists in the world** and found to be without error – also predict that a war fought with less than half of US or Russian strategic nuclear weapons would **destroy the human race**.[iv] In other words, a US-Russian nuclear war would create such extreme long-term damage to the global environment that it would leave the Earth **uninhabitable** for humans and most animal forms of life.¶ A recent article in the Bulletin of the Atomic Scientists, “Self-assured destruction: The climate impacts of nuclear war”,[v] begins by stating:¶ “A nuclear war between Russia and the United States, **even after the arsenal reductions** planned under New START, could produce a nuclear winter. Hence, an attack by either side could be **suicidal**, resulting in self-assured **destruction**.”¶ In 2009, I wrote an article[vi] for the International Commission on Nuclear Non-proliferation and Disarmament that summarizes the findings of these studies. It explains that nuclear firestorms would produce millions of tons of smoke, which would rise above cloud level and form a global stratospheric smoke layer that would **rapidly encircle the Earth**. The smoke layer would remain for at least a **decade**, and it would act to destroy the protective ozone layer (vastly increasing the UV-B reaching Earth[vii]) as well as block warming sunlight, thus creating Ice Age weather conditions that would last **10 years** or longer.¶ Following a US-Russian nuclear war, temperatures in the central US and Eurasia would fall below freezing every day for one to three years; the intense cold would **completely eliminate growing seasons for a decade** or longer. No crops could be grown, leading to a famine that would **kill most humans and large animal populations**.¶ Electromagnetic pulse from high-altitude nuclear detonations would destroy the integrated circuits in all modern electronic devices[viii], including those in commercial nuclear power plants. Every nuclear reactor would almost **instantly** meltdown; every nuclear spent fuel pool (which contain many times more radioactivity than found in the reactors) would boil-off, releasing vast amounts of **long-lived** radioactivity. The fallout would make most of the US and Europe **uninhabitable**. Of course, the survivors of the nuclear war would be **starving to death anyway.** Once nuclear weapons were introduced into a US-Russian conflict, there would be little chance that a **nuclear holocaust** could be avoided. Theories of “limited nuclear war” and “nuclear de-escalation” are **unrealistic**.[ix] In 2002 the Bush administration modified US strategic doctrine from a retaliatory role to permit preemptive nuclear attack; in 2010, the Obama administration made only incremental and miniscule changes to this doctrine, leaving it essentially unchanged. Furthermore, Counterforce doctrine – used by both the US and Russian military – emphasizes the need for preemptive strikes once nuclear war begins. Both sides would be under immense pressure to launch a preemptive nuclear first-strike once military hostilities had commenced, especially if nuclear weapons had already been used on the battlefield.

### 1AC – Adv-- Space Militarization

**India space privatizing now – government development has been too slow; but that causes militarization– the government believes it needs to defend its private assets**

**Nanda 10/13** (Prakash Nanda has been commenting on politics, foreign policy on strategic affairs for nearly three decades. A former National Fellow of the Indian Council for Historical Research and recipient of the Seoul Peace Prize Scholarship, he is also a Distinguished Fellow at the Institute of Peace and Conflict Studies. October 13, 2021, As India Opens Up Space, How ISRO Could Help Indian Air Force Become An Aerospace Superpower, Eurasian Times, Prime Minister Narendra Modi on October 11 launched the Indian Space Association (ISpA) – the premier industry association of space and satellite companies. <https://eurasiantimes.com/as-india-opens-up-space-how-isro-could-help-indian-air-force-become-an-aerospace-superpower/)//ww> pbj

He said: “Today is the day the Indian space sector receives new wings. **For 75 years since independence, Indian space has been dominated by a single umbrella of Indian government and government institutions**. Scientists of India have made huge achievements in these decades, but the need of the hour is that there **should be no restrictions on Indian talent, whether it is in the public sector or in the private sector**. “In a way, the country has given a new gift to the **talent of India’s entrepreneurs by opening up India’s space sector in its 75th year of independence**. Let this collective power of India’s population take the space sector forward in an organized manner. The Indian Space Association (ISpA) will play a huge role in this.” ISpA aims at contributing to the government’s vision of making India “Atmanirbhar” (self-reliant) and a global leader in the space arena, which is fast emerging as the next growth frontier for mankind. **The association is supposed to engage with stakeholders across the ecosystem for the formulation of an enabling policy framework that will also work towards building global linkages for the Indian space industry to bring in critical technology and investments.** Its founding members include Bharti Airtel, Larson & Toubro, Nelco (Tata Group), OneWeb, Mapmyindia, Walchandnagar Industries, and Alpha Design Technologies. Other core members include Godrej, Hughes India, Ananth Technology Limited, Azista-BST Aerospace Private Limited, BEL, Centum Electronics, and Maxar India. India Lagging Behind According to ISRO, the current size of the global space economy stands at about $360 billion. **However, India accounts for only about 2% of the space economy with a potential to capture 9% of the global market share by 2030.** This needs to change. Despite Rafale Boost, Why Indian Air Force Remains ‘Ill-Equipped’ To Battle Chinese PLAAF Over The LAC? And here comes the **role of the IAF in safeguarding the space economy**, among other reasons. With the **increasing private sector activities in space, such as the launching of commercial satellites, the introduction of ‘space tourism’, asteroid mining of minerals, and a range of other fascinating stuff, these space assets of the country need protection from the enemy forces. This explains why many countries have been creating their respective “space forces”.** The US created one in 2019, with the space force becoming a new military branch to protect the nation’s satellites and other space assets, which are vital to everything from national security to day-to-day communications. The United Kingdom, France, Canada, and Japan are said to be following suit. Last month, Germany announced the development of a military space command. China’s “Strategic Support Force”, established in 2015, takes care of its space assets. And Russia since 2015 has had dedicated “Russian Aerospace Forces”. India’s Defence Space Agency It is against this background that Prime Minister Modi had in 2018 **announced the government’s intention to create the Defence Space Agency (DSA)** by integrating space assets from the army, navy, and air force. It was formally set up in 2019 with a staff of some 200 officers drawn from the three services, commanded by an air force officer. It took over the Defence Imagery Processing and Analysis Centre and the Defence Satellite Control Centre. Pioneer In Indian Aviation – Can Tatas Again ‘Rule The Roost’ After Acquiring National Carrier – Air India? In fact, the DSA conducted its first integrated space warfare exercise in July 2019, bringing together personnel from across the services. It “focused on using communications and reconnaissance satellites to integrate intelligence and fires across the range of Indian military assets, indicating a firm understanding of the necessity of access to space.” However, the **DSA is still a work in progress. It is yet to become fully operational**. It is to be located in Delhi and supposed to work closely with the Defence Research Development Organisation (DRDO) and ISRO to **integrate military assets, surveillance platforms such as the AWACS and AEW&C, and commercial and military satellites for intelligence sharing across all three services.** It may be noted that satellites are vitally important to modern warfare as they are a key communication link for ground, sea, and airborne assets, which require sufficient data for voice and data communication. The **DSA, therefore, is also expected to play a greater role in enunciating the planned policies for space-based assets, allowing Indian agencies and companies to work towards meeting these requirements**. A 2016 report on ‘Exploiting Indian Military Capacity in Outer Space’ by the Centre for Joint Warfare Studies (CENJOWS), states that while indigenous satellites provide an adequate capability, “but despite these, India does not get uninterrupted observation of the interested area which is possible only if India launches constellation of satellites for observation which is an emerging trend.” However, it did not mean that India never had dedicated satellites for military purposes before. India had created an “Integrated Space Cell” in June 2008 under the command of the Integrated Defence Services Headquarters with the responsibility to coordinate activities of ISRO and the Indian Armed forces. Integrating Space Assets By 2017, India had reportedly some 14 satellites that were being used for surveillance purposes. This number must have gone up by now, with the country developing ASAT (Anti-satellite) capability, though it is said to be in a nascent stage. Besides, India’s National Technical Research Organization (NTRO), which is controlled by the Research and Analysis Wing, India’s premier intelligence agency, makes extensive use of IRS (Indian Remote Satellites), RISAT (Radar Imaging Satellites), and CARTOSAT (optical earth observation satellites) data to aid in building a comprehensive intelligence picture. All this makes it clear why the Indian government has now realized the need for integrating space assets and capabilities. But, the IAF had realized this very well by publishing in 2012 “Basic Doctrine of the Indian Air Force, 2012”. In it, the IAF repeatedly mentioned “air and space power”. The doctrine was not talking of “air power” in isolation of “space power”; it talked of “aerospace power”. However, the problem has been that while the IAF has been very clear that it has an aerospace role and in this task, it needs the help of the ISRO, the latter has not been that enthusiastic to join hands, at least publicly. As India is a signatory to the international treaty that outlaws military activities (Outer Space Treaty) in space, a common property of mankind, the ISRO seems to have taken a too legalistic view of abhorring the IAF. But then the fact is that the Outer Space Treaty has been the subject of diplomatic wrangles over the precise definition of space weapons, other than nuclear weapons. Besides, there has been no transparency on the part of major world powers in keeping the outer space free from military activities, with the result that one hears concepts like “Star Wars” (Strategic Defence Initiative) by the US and anti satellites (ASAT) by Russia. In any case, it is a fact that the US and its allies have used space resources extensively in fighting recent wars in Iraq and Afghanistan. All told, contrary to the conventional wisdom, the **aerospace power of the IAF will protect the space tools like satellites that are used by the ISRO to augment the country’s economic and scientific power. And this will be possible when there is the capacity to destroy the adversary’s space weapons, based in space, air, land, and water.** Secondly, developing aerospace power does not necessarily mean that there will be war. In most cases, augmented power or strength will ensure that the enemy will not dare to attack you. Instead of being a frontier now, **space complements airpower in numerous missions as an enabler.** That is why analysts say that air and space should be complementary components of defense so that they compensate for each other’s inadequacies in maintaining surveillance of the vertical dimension and in **countering threats from systems like ballistic missiles that transit and maneuver through both air and space. They must be integrated so that the diverse and yet potent elements of air and space are networked adequately. Now that the space sector is being opened up by the Modi government, it is hoped that such a network will be a reality, sooner rather than later.**

#### Indian Space Militarization incentivizes Chinese space race destabilizing the space order, increases tensions with Pakistan, and shreds NFU. Reject internal link defense – it doesn’t take into account Modi’s lash out strategies for political gain

Gettleman and Kumar 19 [Jeffrey Gettleman, a winner of the Pulitzer Prize in 2012 for international reporting, is The Times’s South Asia bureau chief; and Hari Kumar, reporter in the New Delhi bureau of The New York Times. 3-27-2019. India Shot Down a Satellite, Modi Says, Shifting Balance of Power in Asia. No Publication. <https://www.nytimes.com/2019/03/27/world/asia/india-weather-satellite-missle.html?auth=login-email&login=email>.] //aaditg

NEW DELHI — Prime Minister Narendra Modi announced on Wednesday that India had test-fired a rocket that shot down one of its own satellites, escalating the country’s rivalry with China and Pakistan, and demonstrating a strategic capability in space that few countries possess. This technological leap, which was confirmed by the Pentagon, puts India in an exclusive club of nations, along with the United States, Russia and China, that have proved their ability to destroy targets in space. But it has potentially ominous repercussions, accelerating the space race with China and destabilizing the uneasy balance of power between India and Pakistan, which are both armed with nuclear weapons. It could allow India essentially to blind an enemy by taking out its space-based communication and surveillance satellites. Shooting down a satellite is no easy feat. In this case, scientists estimate that the satellite that India blasted apart was moving around the Earth at 17,000 miles per hour. Mr. Modi made the announcement to a rapt nation just weeks before the country heads into a hotly contested election. “India stands tall as a space power!” Mr. Modi tweeted after his announcement. He added that the entire effort had been “indigenous,” accomplished entirely by Indians. When China first successfully tested such an antisatellite missile in 2007, it set off global concern over the growing weaponization of space. Many analysts now worry that the regional rivalry between India and China, the two most populated countries in the world, has moved into space. India’s test was a “demonstration against China,’’ said Kazuto Suzuki, an international relations professor at Hokkaido University in Japan and an expert on space security. “The proliferation of this technology and capability would make the space order very unstable,’’ he said. In Washington, Air Force Lt. Gen. David D. Thompson told a Senate hearing on Wednesday that India’s test did occur, and that the Pentagon was aware beforehand because India had announced flight bans. General Thompson, the vice commander of the Air Force Space Command, said the launch occurred at 1:39 a.m. Eastern Time, and that the explosion was detected at Buckley Air Force Base in Colorado. He said the test “struck the target vehicle” and created 270 pieces of debris that will likely increase as the debris field expands. He added that, “At this point in time, the International Space Station is not at risk.” Mr. Modi broke the news in a rare televised address to the nation, and many Indians immediately suspected that his primary objective was more political than technological. Editors’ Picks An Overlooked Cure for Loneliness Boba Fett, Intergalactic Man of Mystery He Paid $30 for a Drawing. It Could Be a Renaissance Work Worth Millions. Image The launching of a ballistic missile on Wednesday in Odisha, India. The launching of a ballistic missile on Wednesday in Odisha, India.Credit...Indian Space Research Organization In a little more than two weeks, India will begin holding an election — the biggest in history, with nearly 900 million registered voters — and Mr. Modi is up for re-election. Leaders in his political party have recently been heckled in public and attendance has been poor at rallies for some of his party’s candidates. Though Mr. Modi enjoyed a burst of popular support after India conducted airstrikes last month in Balakot, Pakistan, in retaliation for a deadly suicide bombing by militants against Indian forces, that news has mostly subsided. The announcement “shows a poll-eve desperation we hadn’t yet detected/suspected,” tweeted Shekhar Gupta, one of India’s best known political commentators. “It’s just a frantic new national security headline as Balakot has faded in a month.” On Wednesday morning, Mr. Modi posted a message on Twitter, which he uses frequently, telling Indians to tune in because he was about to make a major announcement. Many people believed the speech would be related to Pakistan; tensions had risen fast and high last month after Indian warplanes dropped several bombs on the site in Balakot where Indian authorities said anti-India militants were hiding. It is not clear what, if anything, the Indian Air Force hit. But the next day Pakistan shot down an Indian fighter jet and captured the pilot, pushing the two nuclear-equipped nations dangerously close to a major conflict. Pakistan quickly defused the situation by releasing the pilot. The whole episode brought Mr. Modi a crest of support. The old, thorny issues that had been dogging him — such as rising unemployment, poor drinking water and widespread distress among farmers — disappeared for a moment. Flags came out across the country. Even Indians who disagreed with the Hindu nationalist flavor of Mr. Modi’s party still cheered him. But in the past few days, the electoral mood seems to have changed once again. Complaints about jobs, health care and farm subsidies have been rising. The Indian National Congress, the leading opposition party, scored some points after its leader, Rahul Gandhi, the scion of a longstanding political dynasty, promised that Congress would give the equivalent of $1,000 to India’s poorest families. Around noon, when Mr. Modi was set to address the nation, the streets of New Delhi, the capital, grew uncharacteristically quiet. Many people ducked inside shops to watch TV. Saurav Jha, the editor in chief of “Delhi Defence Review,” an online defense related magazine, said that successfully shooting down a satellite was a major achievement. “It’s as significant as India’s first nuclear blast,” he said. India has been steadily advancing its space program since its first satellite launch in 1975. It joined a manned space mission with Russia in 1984 and launched a Mars orbiter in 2013. This December, India sent its heaviest communication satellite so far, weighing nearly 5,000 pounds, into space. A big motivation clearly is China. As China has stepped up its satellite launches and space probes, India has been trying to catch up. The test, Mr. Jha said, was “very much the part of the India-China rivalry.” Another factor may have been archrival Pakistan. Last year, China helped Pakistan launch a remote sensing satellite. India’s test showed it could blast apart the Pakistani eye in the sky, turning it into space garbage. This could make the bitter regional contest between India and Pakistan even more dangerous. Before this test, the two militaries were widely viewed as comparable. Each side has been reluctant to start a major conflict, fearing that the other could stage a devastating counterattack. But some analysts said that India might now be able to stage a pre-emptive attack on Pakistan’s satellites. That could unsettle the longstanding doctrine of mutually assured destruction that both countries have followed, and put Pakistan even more on edge. It also could presage a change in Indian nuclear strategy. The country has always promised it would make no first use of nuclear weapons — a limitation that means it might lose one or more major cities in a nuclear exchange before striking back. But if it can leverage its new antisatellite technology to move ahead with basic antimissile defenses, which require hitting an incoming warhead in space, it could change the strategic balance. “The militarization of space is underway, whether anybody likes it or not,” Mr. Jha added. Part of the reason, he said, was that satellite technology had become “the backbone of global communication.”

#### Two scenarios:

#### [1] Indo-Pak

#### India Pakistan tensions are high – any attempt at reform is one step forward, three steps back

PTI 12/24 [ The Press Trust of India Ltd., commonly known as PTI, is the largest news agency in India. It is headquartered in New Delhi and is a nonprofit cooperative among more than 500 Indian newspapers 12-24-2021 East Mojo “India-Pakistan ties: Too near yet far apart” <https://www.eastmojo.com/national/2021/12/24/india-pakistan-ties-too-near-yet-far-apart/> ] //aaditg

Islamabad: When Pakistan and India agreed to restore peace along the highly volatile Line of Control (LoC) in February 2021, it appeared that they were again ready to take a turn on the bumpy road of animosity and mistrust. The ensuing months, however, showed that it was yet another mirage. The story of Pakistan-India relations is a tale of the proverbial ‘one step forward, two steps backward’. So far, almost every positive development in terms of the bilateral ties has been overtaken by innate hostility that is often driven by popular sentiments. In a surprise announcement on February 25, India and Pakistan said that they have agreed to strictly observe all agreements on ceasefire along the LoC. India and Pakistan signed a ceasefire agreement in 2003, but it has hardly been followed in letter and spirit over the past several years with more violations than observance of the pact. ADVERTISEMENT CONTINUE READING BELOW The restoration of the ceasefire agreement of 2003 on the LoC was not an exception. Soon it was followed by reports, insinuating that the two sides were engaged in a secret diplomacy in some shady haunt of the Arabian deserts (the so-called talks reportedly being held in the UAE). No official statement was issued about the status of talks but ties remain frozen. Weeks later in March, Army chief Gen Qamar Javed Bajwa said that it was time for India and Pakistan to bury the past and move forward . In his address to first-ever Islamabad Security Dialogue, participated by Who’s Who’ of Pakistan’s security establishment, Gen Bajwa said that stable Indo-Pak relation is a key to unlock the untapped potential of South and Central Asia by ensuring connectivity between East and West Asia but also mentioned that Kashmir was the main stumbling block in normalisation of bilateral ties. Previously Pakistan had conditioned the start of talks with India if it reversed the August, 2019 steps in Kashmir, but Gen Bajwa lowered the bar by saying that India should create a conducive environment. The powerful army, which has ruled Pakistan for more than half of its 70 plus years of existence, has hitherto wielded considerable power in the matters of security and foreign policy. ADVERTISEMENT CONTINUE READING BELOW Prime Minister Imran Khan, who had taken a hardline stance since India abolished the special status of Jammu and Kashmir in 2019, also reduced his rhetoric by saying that good relations with neighbours were paramount for national security. “We will not be able to take full advantage of our geo-strategic location until we have regional peace, until our relations with our neighbours and our trade ties do not improve,” he said in the address to the same event. On March 31, Pakistan almost surprised India when its Economic Coordination Committee (ECC), a top decision-making body, lifted a ban on the import of sugar and cotton from India. Finance Minister Hammad Azhar had announced the big decision. Apparently, the permission for import was given without taking all stakeholders on board, including the Ministry of Foreign Affairs. Sources in the ministry said that foreign minister Shah Mahmood Qureshi was unhappy with the decision. Consequently, it was withdrawn as quickly as it was announced. Months later in November, Pakistan silently allowed India to use its airspace for direct flights between Kashmir and the UAE, but its fate was not different from the previous positive steps. The move was scuttled after a week when Islamabad withdrew the permission. No reason was given why the flights were allowed, and why they were discontinued. ADVERTISEMENT CONTINUE READING BELOW The event in Afghanistan served as a major diversion as the Taliban took over Kabul in August, giving a big boost to Pakistan vis-a-vis India’s stakes in Afghanistan. In the wake of the change in regime in Afghanistan, Islamabad’s entire attention has been riveted on Kabul and it has been pulling all strings to give time to the Taliban to adjust to the new situation to earn global recognition of its interim government, which includes at least 14 Cabinet members blacklisted by the UN. The Afghan situation stirred a positive development in the context of Pak-India ties. In December, Pakistan allowed India to send a humanitarian shipment of 50,000 tonnes of wheat and life-saving drugs to Afghanistan through the Wagah border crossing. Unlike the short-lived optimism after the permission for direct flights between Srinagar and Sharjah and allowing import of sugar and cotton from India, the decision to let India send wheat on its condition of using only the Afghan trucks for transit has not been reversed. But it is difficult to interpret it as a breakthrough in bilateral relations. In November, India reopened the Kartarpur Corridor that links Gurdwara Darbar Sahib in Pakistan, the final resting place of Guru Nanak Dev, to Dera Baba Nanak shrine in Punjab’s Gurdaspur district. ADVERTISEMENT CONTINUE READING BELOW Punjab Chief Minister Charanjit Singh Channi, along with about 30 persons, including his Cabinet ministers, visited the revered Gurdwara Darbar Sahib in Pakistan using the visa-free Kartarpur corridor on the second day of the reopening of the route which was suspended for some 20 months following the COVID-19 outbreak. Towards the end of the year, Prime Minister Khan, while addressing a seminar on December 9 in Islamabad, said peace with India is not possible until the resolution of the Kashmir dispute. But he also added another hurdle this time: the RSS ideology. For ties between India and Pakistan, things are back to square one as another year nears its end. The two sides also failed to agree how Indian prisoner Kulbhushan Jadhav on death row in Pakistan should be represented in his review appeal in Islamabad High Court against his conviction by a Pakistani military court.

#### NFU *uniquely* likely to shred since Pakistan has *no* space militarization goals

Bano 20 [ Sher Bano is working as a Research Affiliate at the Strategic Vision Institute (SVI), a non-partisan think-tank based out of Islamabad, Pakistan. “Modern Diplomacy Indian Militarization of Outer Space: Security Implications For Pakistan” Aug 29, 2020 <https://moderndiplomacy.eu/2020/08/29/indian-militarization-of-outer-space-security-implications-for-pakistan/> ] //aaditg

In March 2019, India had successfully tested an anti-satellite weapon by destroying one of its own satellites in outer space. By doing so, India has become the fourth country in the world after the US, Russia, and China that possess the ASAT capability. Similarly, with this capability, the likelihood of India’s space weaponization is more evident as India would be in a strong position to kinetically destroy any incoming satellite. This would be a significant military advantage, especially in a crisis, as India would be in a position to use its ASAT capability to disturb the satellite communications and intelligence