#### Their fantasies of effectiveness lead to serial policy failure and the continuation of exploitation through corporate control. Only our analysis can expose the imaginary longings of the political psyche – this is a pre-requisite to any effective form of policymaking.

Fotaki 10 (Marianna Fotaki is a Professor of Business Ethics at Warwick Business School and a visiting professor at The University of Manchester, “Why do public policies fail so often? Exploring health policy-making as an imaginary and symbolic construction”, Organization) AqN recut OL

The origins of the ‘choice for all’ fantasy, and every other fantasy, are to be found in the need of the subject to be ‘recognized’ in the symbolic Other in order to exist. Let us not forget that the motivation and impetus for the Lacanian subject is always the desire to retrieve the illusory unity that has been sacrificed upon entry into the symbolic order via language. Language operates by signifying the object in its absence and this is why desire always contains loss within it. Without this loss of the sense of a unified identity and the fantasy it gives rise to, there would be no signification and no symbolic life. In other words, social reality is structured by our imaginary misperceptions, as well as our unsymbolizable unconscious longings, which have been given up (repressed) into the unconscious in the socialization process. Such is, for example, the fantasy of effective policy, of purposeful organization and of harmonious society—all stemming from an impossible desire for unity. The Lacanian perspective unveils the imaginary nature of such strivings which underpins various social and political projects, including idealistic and idealized public policies and dismisses them as vain attempts to counteract our ontological and temporal finitude as human beings. It also reveals why these unacknowledged imaginary and symbolic functions are indispensable for bringing policies to life, even if they cannot be achieved. Such is the example of pursuing ‘Choice for All’ (see Milburn, 2003; Reid, 2003) in a public health system with finite resources and tangible opportunity costs. It offers a stark testimony of the impossibility of realizing the policy objectives it proclaims, despite or perhaps because of its universalistic (and omnipotent) aspirations. Satisfaction of all individual wants will not be possible without limiting someone else’s access to resources and therefore options. This contravenes the founding collectivist principles of the NHS of offering equal access to all according to need. The attempt to attain the fantasy of the impossible can also explain policy recycling and repetition of the same ideas, despite many documented failures. However, the desire to attain the lost part of the self, which is the Lacanian objet petit á, and which in the case of (freedom of) patient choice stands in for freedom from the bounds of the human predicament, instigates the articulation of such and other improbable policies, only if and when the opportune moment arrives. Political expediency, a shift in dominant societal discourses and other massive social changes can all prompt such a move. Once policy makers are implicitly entrusted with formulating aspirational rather than realizable policies, their unworkable aspects are then further reinforced by psychological processes such as organizational defences in health settings. These involve separating off and denying unwanted reality (Heginbotham, 1999; Obholzer and Zagier-Roberts, 1994; Vince and Broussine, 1996). The illusory nature of many public health policies is evidenced whenever they are being formulated in denial of their contextual reality. An idealistic policy such as Choice for All must not be tested against reality and must therefore remain exterior to the organizations that will implement it. Socially sanctioned defensive reactions such as splitting between the idealized policy and its imperfect implementation, and the projection of blame onto various organizational members, are hence employed to protect against discarding this illusion. Object relations theorists came up with various elaborate theories on how social institutions enact psychodynamic mechanisms to defend individuals and groups from existential anxieties (see De Board, 1978; Obholzer, 1994).6 I have also suggested, that health policy must be idealistic to fulfil the impossible goal of the health care system, namely to defend us against the anxiety about disease and dying, a defence it can never fully accomplish (Fotaki, 2006). Although such defences might be necessary to keep destructive fears of annihilation at bay, at the same time they act as a dysfunctional barrier against attaining awareness of our own constructs and ultimately against our attempts to acknowledge fantasy and to survive its failure. To sum up, Kleinian analysis suggests how splits between policy design and organizational reality operate to ‘protect’ us from coming to terms with unrealistic policies, but the Lacanian conception of subjectivity explains why policies are designed in such way and why the splits are there in the first place. In a Lacanian perspective, while the policy tool can be seen to act as a defence against societal anxieties, these anxieties are not simply generated by the health risks themselves, but are sites in which the already existing (subjective) anxiety is expressed collectively. Put differently, we are all anxious anyway as, for Lacan, anxiety is the fear ‘of the lack of lack’ and this is why these symbolic manifestations of extant general anxiety float from one public issue to another, as was helpfully put by one reviewer.7 This leads me now to the central claim I make in this article, namely, that the imaginary construction of policy-making, if unacknowledged, leads to multiple splits and ultimately underscores its failure. The example of patient choice is so evidently suffused with unrealizable promises, as is chosen to highlight the undesirable effects of unrecognized fantasies in the policy-making process and the difficulty of translating value driven statements into organizational realities. The use of abstract economic models simplifying human decisions and devoiding them of real life messiness, and the Labour government’s belated enchantment with the market and competition (Le Grand, 2006; Le Grand and Dixon, 2006) to solve the insoluble efficiency/equity dilemma, ensures that policy formulation is distanced from organizational reality. When such realization of an intrinsic conflict between fantasy and reality and the potential for failure is absent from policy making, defensive mechanisms (projection and splitting) cascade down into health care organizations. These are necessary in order to maintain the splits between a good policy and the flawed implementation should the policy fail, as it must, and for apportioning the blame towards those who must be held responsible for policy failure. Politicians blame health professionals for not meeting their impossible ideals, insisting that more managers are required in order to police their choices. Various groups of health professionals are pitted against each other (doctors versus managers or doctors versus nurses for example) as they are simultaneously idealized and denigrated, offering protection against the inevitability of failure of the unworkable policies while better policies are awaited in the future. Clearly, the process of articulating impossible policies and the difficulties involved in implementing them are all underscored by the idealization and defences around working in health care, as the seminal work of Menzies (1960) has illustrated. The alleged beneficiaries of policies are subject to idealization too: patient choice is after all introduced in the name of empowering the deserving users of services against the dominance of all-powerful professionals who do not always have their patents’ best interest in mind.8 Yet those who do not accept responsibilities for their health related choices are exempted from the category of deserving users as they are stigmatized and refused treatment (see the example of obese patients and smokers turned down by some health authorities in England—BBC, 2005). Inherent in New Labour’s project of modernization is the assumption that the modern citizen should be both managerial and entrepreneurial (Scourfield, 2007). The price of greater autonomy and involvement is that users must assume active responsibility for these activities, both for carrying them out and for their outcomes. This new form of ‘responsibilization’ corresponds to the new ways in which the governed are encouraged to act freely and rationally while conducting themselves in accordance with the appropriate (or approved) model of action (Burchell, 1993: 276, cited in Scourfield, 2007). Their subordinated citizenship then becomes doubly underlined by their ‘choice’ to have services arranged for them, while they are required to acquire the flexibility of ‘the person’ (Scourfield, 2007). Choice and independence are powerful concepts but dependency and interdependency are part of all our lives, for some of us more than others. It is clear that such policies invariably ignore the reality of non-uniform patients, who are themselves fragmented and divided subjects; more so in times of dislocation and stress Scourfield (2007) reminds us. But the Lacanian analysis of policy making does not simply suggest that the glorification of choice would not have been possible in the absence of an underlying fantasy. It gives us conceptual tools to explore how the inherent idealization involved in articulating aspirational policy objectives such as Choice for All, for example, might enable policy capture by powerful political groups and/ or organized interests for their own ideological and political ends. This is because various (conscious and less conscious) forms of political exploitation are more likely to occur when policy content coheres with the imaginary longings of the psyche. The desire for unity in the subject may be more easily written into political projects, especially when it is being translated into the language of the alleged wants of the disembodied and idealized patient and/or user of health care desiring the abstract notion of ‘choice’. Because choice for all could mean anything and appeal to everybody, it can be easily used as a vehicle to articulate the concerns of a particular segment of society (mostly the vocal and educated middle-classes). In reality, however, patient choice more often than not implies the co-option of calls for greater user empowerment into the neoliberal discourse of greater responsibility. This serves as an excuse for policies that are aimed at the retrenchment of the welfare state and the transfer of public responsibilities to the individual. Similarly, the discourse of inefficiency and irresponsiveness in public services is employed to legitimize managerialism as the sole remedy for these ills. However, this reframes the value of professional ethos and expertise by relegating them to the category of secondary attributes in order to establish neo-Taylorist methods of work as an uncontested norm for every professional group in the NHS (Newman et al., 2008).

#### Language is fundamentally incomplete- there is always a gap in understanding and communicating needs. Subjectivity exists in the symbolic and is constituted by the existence within language and the immovable existence of the Lack, the inability to communicate needs due to the gap between signifiers and the signified. The Lack generates drives toward desires that we can never reach. Thus, the ROTB is to traverse the fantasy – that means exposing drives. Ruti 1

Ruti, Mari. “The Fall of Fantasies: A Lacanian Reading of Lack.” Journal of the American Psychoanalytic Association, vol. 56, no. 2, June 2008, pp. 483–508, doi:10.1177/0003065108319687. OL

One of Lacan’s greatest innovations was to connect the subject’s con- stitutive negativity to language—to collective structures of signification and meaning production—in ways that provide a pioneering hypothesis of why and how lack comes to motivate the subject’s behavior in the world. Lacan explains that the subject’s sense of lack results from the processes of language acquisition that socialize the human infant into cultural systems of meaning—what Lacan calls the symbolic order (or “the Other”). Lacan proposes that prior to language acquisition, the child is not yet fully capable of differentiating between herself and the people and objects that surround her. She consequently possesses neither an inner life nor a social awareness. For these to emerge—for the child to enter a fully human existence—she needs to undergo a course of separa- tion that teaches her to recognize herself as distinct from the world. Freud theorized this course of separation in terms of the oedipus complex as a mechanism that severs the child’s dependence on her surroundings by forcing her to confront the painful fact that certain objects—most notably the mother or the father—remain erotically forbidden. Lacan in turn emphasizes that it is by internalizing the significatory codes of the sociosymbolic world that the child becomes aware of cultural interdic- tions and comes to regard herself as a discrete entity. In Lacanian terms, the process of internalizing the codes of language brings the child’s psychic life into being, making her capable of produc- ing meaning. The same way as the oedipus complex transforms the child from a creature ruled by primordial drives to one who enacts desire in culturally intelligible ways, language acquisition inserts the child into the world of collective rules and regulations (the world of the symbolic Other). This process is necessary not only because it teaches the child to conduct herself as a social and intersubjective entity, but also because it gives rise to more complex and advanced levels of internal organization. But it can also be coercive in the sense that it initiates the child into nor- mative—and frequently quite unequal and repressive—collective struc- tures, punishing all attempts to deviate from what the cultural order deems right and proper. In other words, it carries the force of prohibition, giving the child her first bitter taste of wanting what she cannot have. As a consequence, it generates lack—the relentless sense of incompleteness that characterizes human existence—as the melancholy underside of social subjectivity. Although most psychoanalytic approaches recognize the child’s sep- aration from her caretakers and the surrounding world as a pivotal moment of subject formation, they do not necessarily see lack as an inevitable corollary of this moment. For many of them, the child emerges from the process of individuation feeling wounded or insecure only if something about this process goes awry—as, for instance, when the parents for one reason or another fail to fully facilitate the child’s transi- tion to social subjectivity. What makes Lacan distinctive—and what makes his theory disagreeable to some—is that he believes the child’s awareness of lack and longing to be inescapable; it is, in a sense, the price the child pays for being able to enter the social realm of meanings and values. The signifier, insofar as it carries cultural prohibition, forces the child to realize that she is not invincible, that she operates within a social world that is much more powerful than she could ever be, and that there are parts of that world that she does not have access to. In this fashion, the signifier dispels the child’s primordial impression of being at one with the world, causing an irreparable inner rift or division; the very develop- mental course that empowers the child to materialize as a psychically autonomous entity is also what makes her feel lacking and self-alienated. That is, while language initiates an indispensable process of character formation, it also causes a kind of symbolic castration. What is lost in this process—what drains into the void of being—is the subject’s fantasy of self-sufficiency. This unfortunate event, Lacan suggests, is what the subject spends the rest of her life working through.4 Language generates lack. Lack in turn generates desire. While it is common to assume that desire is what is most “natural” about our lives, Lacan reveals the exact opposite, namely, that desire is a product of cul- ture—a function of the ways in which the signifiers of the social order cut into the child’s biological constitution. Indeed, a great deal has been made of the fact that, in Lacanian terms, desire emerges through the mortification and subordination of the body and of its unmediated enjoyment. The signi- fier violates—mutilates and dismembers—the body as a “thing,” as a spon- taneous nexus of drives that struggles for viability and fullness of being beyond the symbolic system into which it is inserted. As Slavoj Zˇizˇek (1992) explains: “Word is murder of a thing, not only in the elementary sense of implying its absence—by naming a thing, we treat it as absent, as dead, although it is still present—but above all in the sense of its radical *dissection:* the word ‘quarters’ the thing . . .” (p. 51).5 The signifier thus carves out the body in specific ways in order to give rise to a particular form of subjectivity and desire. It is in this sense that the subject is vulner- able to what Lacan calls the “agency of the signifier.” The course of indi- viduation initiated by the signifier may be necessary for the subject’s ability to orient herself in the world, but it simultaneously colonizes the presym- bolic body in ways that evacuate the body of its enjoyment. Lacan hence underscores that it is only when the body’s immediate enjoyment is sacrificed to the signifier that subjectivity as a site of social energy and desire comes into being. This privileging of the “passion of the signifier” (Lacan 1966b, p. 578) over the passion of the body is undoubtedly problematic in light of the denigration of the body—and particularly of fem- ininity as what always carries the indelible trace of the body—that has char- acterized Western thought at least since Plato and Aristotle.6 Yet Lacan also presents a poignant insight into the nature of subjectivity when he suggests that it is insofar as the signifier causes the subject to desire that she is com- pelled to turn outward—that she is persuaded to care about the contours and unfolding of the surrounding world.7 After all, without desire, the subject would have little curiosity regarding the things, objects, and beings that inhabit and make up the world. In this sense, it is precisely the subject’s per- sistent awareness of being less than fully realized that allows her to approach the world as a space of possibility. That is, it is only insofar as the subject experiences herself as needing something from the world that she has a con- ception of the world as a place that can potentially meet her yearnings and that might accordingly have something valuable to offer. In this manner, lack gives rise to a self that is open to—and ravenous for—the world. Because the world is filled with marvelous objects that entice the subject’s desire—because the world, though certainly full of limitations and deprivations, is also brimming with possibilities—the subject is compelled to reach beyond her solipsistic universe; she is given the gift of attentiveness. This turning outward is, moreover, not limited to an encounter with already existing objects, but entails the strong aspiration to bring new objects into being. Precisely because the subject can never attain a state of wholeness, she is driven to look for substitutes that might compen- sate for her sense of lack; she is motivated to invent objects and figures of meaning that can, momentarily at least, ease and contain the discomfort of alienation. In this paradoxical sense, rather than robbing the subject of inner richness and vitality, lack is the underpinning of everything that is potentially innovative about human life. Indeed, it is possible to envision the intricate productions and fabrications of the human psyche as vehicles through which the foundational lack of existence assumes a positive and tangible form. This in turn suggests that the subject’s ability to dwell within lack without seek- ing to close it—her ability to tarry with the negative, to express the matter in Zˇ izˇ ekian/Hegelian terms—is indispensable for her psychic aliveness. As a matter of fact, such tarrying with the negative could be argued to be the great- est of human achievements, for it transforms the terrors and midnights of the spirit into symbolic formations, imaginative undertakings, and sites of deli- cate beauty that make the world the absorbing and spellbinding place that it—in its most auspicious moments, at least—can be. The subject’s repeated attempts to fill the void within her being thus give rise to a whole host of creative endeavors. Or in more Lacanian terms, because the subject can never repossess the blissful state of pleni- tude that she imagines having lost, because the subject cannot attain what Lacan calls the Thing—the primordial object that promises unmediated enjoyment—she is driven to look for surrogates that might compensate for her lack. As Lacan observes in *The Ethics of Psychoanalysis* (1959– 1960), the Thing—which inevitably remains obscure and unattainable— can be brought to life only through a series of substitutes. “If the Thing were not fundamentally veiled,” Lacan explains, “we wouldn’t be in the kind of relationship to it that obliges us, as the whole of psychic life is obliged, to encircle it or bypass it in order to conceive it” (p. 118). Precisely because the Thing is irrevocably lost, because it cannot be res- urrected in any immediate form, the subject scurries from signifier to sig- nifier to embody it obliquely. Like a potter who creates a vase around emptiness, “creates it, just like the mythical creator, *ex nihilo*, starting with a hole” (p. 121), the subject fashions a signifier, or an elaborate string or sequence of signifiers, from the void of her being.8 Lacan emphasizes that emptiness and fullness—the void of the vase and the possibility of filling it—are introduced to the world simultaneously (p. 120). In short, it is because we lack that we are prompted to create, and it is through our creative activity that we manage, in an always nec- essarily precarious manner, to withstand our lack. On this view, the sig- nifier is not merely what mortifies the body, but also what empowers the subject to move to an existential space beyond mortification by granting her the gift of creativity. In this context, it is important to specify that the translation of lack into creativity is not a matter of dialectical redemption in the sense of giv- ing the subject the ability to turn negativity into a definitive form of posi- tivity. The subject’s attempts to name her lack are transient at best, giving her access to no permanent meaning, no solid identity, no unitary narra- tive of self-actualization. Any fleeting state of fullness or positivity that the subject may be able to attain must always in the end dissolve back into negativity; any endeavor to erase lack only gives rise to new instances of lack. This implies that the process of filling lack must of necessity be con- tinually renewed. It cannot be brought to an end for the simple reason that the subject can never forge an object or a representation that would once and for all seal this lack. However, far from being a hindrance to existen- tial vitality, this intrinsic impossibility—the fact that every attempt to redeem lack unavoidably falls short of its mark—is what allows us, over and again, to take up the endless process of signifying beauty. As Kaja Silverman (2000) advances, “Our capacity to signify beauty has no limits. It is born of a loss which can never be adequately named, and whose con- sequence is, quite simply, the human imperative to engage in a ceaseless signification. It is finally this never-ending symbolization that the world wants from us” (p. 146). Lacan’s rendering of the subject’s relationship to the signifier is there- fore complex in the sense that although he consistently accentuates the subject’s relative helplessness vis-à-vis the larger systems of signification that envelop her, he at the same time suggests that it is only by virtue of her membership in the symbolic order that the subject possesses the capacity to make meaning in the first place. The symbolic, in other words, is not merely (or even primarily) a hegemonic structure that coerces the subject into its law, but also—as I have endeavored to illustrate—the foundation of her creative potentialities.9 Lacan in fact insists that though the subject can never master the signifier—let alone the signified—she enjoys a certain degree of imaginative leeway with respect to it. He describes this imaginative leeway as the subject’s capacity to make use of the “poetic function” of language (1966b, p. 264)—the fact that language by definition perpetuates the radical slipperiness, multiplicity, and poly- valence of meaning. The same way that Heidegger (1971) connects cre- ativity to the individual’s ability to dwell in the world in poetic rather than merely instrumental ways, Lacan envisions creativity in terms of the subject’s capacity to take a poetic approach to the world—an approach that is content to play with meaning without attempting to arrest it in unequivocal or transparent definitions.

#### The repetition of drives makes life the enemy and reifies the aff impact of extinction

Themi 08 (Tim, Prof @ Deakin U, “How Lacan’s Ethics Might Improve Our Understanding of Nietzsche’s Critique of Platonism: The Neurosis & Nihilism of a ‘Life’ Against Life,” *Cosmos and History: The Journal of Natural and Social Philosophy* 4.1-2, 2008) SJBE, recut from Harvard BoSu

For to circle in too close to the Thing which is ethically forbidden by our reality principles––yet too the real truth of much desire––does hardly give us pleasure at all but anguish of the heaviest kind. Even if done so only as a thought experiment; as a free-association. So go there we generally don’t, and our ‘realities’ reflect as much. But henceforth when desire builds up, damns and flares return of the Thing: this is how Lacan specifically characterises the move we might make that goes beyond the pleasure principle, whose other name for Freud is ‘death-drive’. There where there is no, not pleasure yet jouissance in the transgression that the Thing would bring, a jouissance of transgression which Lacan suggests is the most direct satisfaction of a drive humanly possible[48]. But it’s also one perhaps unconsciously masochistic, that which Freud writes up as being only preliminarily sadistic, in eventually expressing itself as an “unconscious need for punishment”[49]. And if indeed we are feeling guilty, then we may yet still seek to pay the price. Why? For unknowingly possessing and inadvertently re-accessing this Thing in our real, beyond the pleasure-reality principle, our moral transgressions casting shadow long into the unconscious we know next to nothing about, and refuse even to acknowledge.¶ Could it not be thusly then that our time is behind now a sadomasochistic, wilfully ignorant drive towards death for nigh the entire species? Such punishment would too overly suffice, to be sure, for even a two-millennium length in repression…¶ But with our advancements in technological power outmatching by far any correlative advance in the awareness gained as a whole of our prehistoric Thing within: the great 21st century ecological disaster that too many academics and activists now increasingly predict, seems more than just a little possible. But to this increasingly macabre scenario, we must also add the renewed proliferation of nuclear weapons which occurs, no less, amidst a world where vital resources for energy and democracy are wearing thin[50]. For just such reasons, wilful ignorance of the Thing now bares results which Lacan’s Ethics reveals as far too terrifyingly possible to rationally accept; given that we have the Thing armed to the teeth now from that primitive id-like part of the brain, with no Sovereign Good, and all the way into a nuclear age.¶ CONCLUSION: THE NEUROSIS & NIHILISM OF A ‘LIFE’ AGAINST LIFE.¶ This is why Lacan proposes that his enquiry into ethics must be one to go “more deeply into the notion of the real”(LE:11). Further into what he would rather call the real, given that previous notions of ‘nature’ have been too far ‘different’––from being far too Platonic––than his own; and because it’s the very exclusions in these previous notions which upon return, as return of excess, are yielding our most tragic problems.¶ Today when faced with problems of the magnitude of global warming––a special but by no means solo case of adverse environment change at present due to our physical treatment of the planet––we often think the answer is to be more moral, more good, and we are thankful when exponents of the Good in some way bring attention to the problem. However, the idea of the Good as introduced by Plato, and nigh all of its descendants whether secular, rationalist, religious or not, continue to predicate themselves on a radically false picture of the human-condition: if not still of the entire cosmos––which only then lines itself up aside of an age-old repression, a repression of das Ding, that Freudian Thing in our inner real which, when it returns after being disavowed and denied in the name of the Good too long, is even more devastating.¶ Presently we are accelerating along the path of what Lacan discloses as our civilisation’s “race towards destruction”, a “massive destruction”, “a resurgence of savagery”, snaking the paths traced out before us by the centuries long dominion of Western morality [51]; and the nihilism detected by Nietzsche before the turn of the 20th has never threatened to reach such the grand finale. But what I would have us take from this enquiry here is that this is not because we aren’t in accordance enough with a moral ideal of the Sovereign good, but rather, it’s because we aren’t in accordance enough with a proper understanding of the real. It’s because we still at some level think that being more moral, in accordance with the Good’s inherited repressive structures towards our drives, desire, and truthfulness about the real, is actually the answer to––rather than the source of––our most tragic problems.¶ The goal here is by no means then to encourage all to let their Things run wild––which would probably be nothing short of an instant conflagration––but this is why and precisely why we must desist from deluding ourselves under the tightening grip of a Sovereign Good, for this is precisely the move which cuts the Thing loose after pressing down for far too long, a slippery hand’s palming on the coils of a spring, forever readying the subsequent explosion. For when that which is really real––as opposed to what Christian-Platonism falsely called the ‘real’––is forced from mind, it can’t really disappear because it is real, and it tends to end up only in our gun-sights as an imaginary overlaying of an external other, when the signifier ‘enmity’ appears. The earth itself can even seem like the enemy after while, one which like Plato in his Phaedo, we might think then to escape from “as if from a prison”, and especially from “the bonds of the body”, in the hope that we may live one day without the earthly altogether[52]. Following such negations to their logical conclusion, life itself becomes enemy too, for as being made up of the earthly and organic, life could never be free of what it is in essence. And what is the death-drive Freud tells from the start, if not to return us sundry to that dust-bowl of the inorganic; as per that “second death”[53] fantasm Lacan salvages from the Monstre de Sade, which wills to go beyond the destruction of mere beings, by destroying too the principle from which fresh sets could emerge. Such negative devaluations of our earthly, organic life though are really of our own construction: as de Sade, like any pervert, is only the mirror which shows expressed what Platonic-neurotics are but hide inside––a cess-pit of loathing contempt for life, built up from the unconscious and disowned, distorted and damned up, built up, instinctual-ideational elements of their own subjective psyches, phobically ferocious of that Thingly real lying not so dormant, and readying within…¶ But is it now still possible as Nietzsche teaches to say ‘Yes’ to the real of nature both without and within––to return to it!––even though it is more frightful and we are less guaranteed protection of it than the Platonic history of metaphysicians taught? For with the further disclosures of The Ethics of Psychoanalysis––Lacan’s following up and extension of the meta-ethical implications of Freud: perhaps even Nietzsche, our great intellectual übermensch, may too have bitten off more snake-head than he could chew? From certain moments in Nietzsche’s texts we can perhaps interpret that he may have had this Thing in his sights, but saw nothing much to come of it, so instead, elected to turn away, though not without some perhaps hinted at self-amusement.[54]¶ But with psychoanalysis, rightly or wrongly, such truths are out. It doesn’t seem all positive at first, and perhaps it never entirely will. But we must not let this deeper disclosure desist us now from the core Nietzschean project of locating and overcoming the nihilism which begs us to take cover in idealising fictions, as if life as life is not worth living. Not because nihilism and the annihilation of the species is wrong in the sense of being immoral, but rather because it is bad art, mediocre art, and the ‘knowledge’ claims it trumpets on should only make us flare. If we are at our full intellectual and creative will to power, we can only consider such cultural-civil regressions as we saw on display with that whole propaganda comedy that surrounded the war for more oil in Iraq as infantile; the hapless results of sibling rivalries gone too far astray. But we must also resist being caught up in the imaginary of those who would only re-preach to us now of a return to the Good, who would only redeploy such versions of nihilism’s precursory defensive fictions, the pernicious ones, which would only then re-falsify our data, and leave us disappointed when the truth then re-emerges. Doing more harm than good does Platonism in the end by leaving us untrained for the real, with the habit instead to take some truth as ‘error’, and error as ‘truth’––as ‘real’––to the point even of epistemic dysfunction. Take the grotesque intellectual poverty of that whole Christian middle-ages for example, whence put into relation with the heights of Aristotle and his fellow Greeks, as Augustine and Aquinas amplified some of the worst bits of Platonism, and threw the rest into abyss.¶ The overcoming of the moralising good of Christian-Platonism though does by no means imply then a subsequent affirmation of all that brutal Roman like greed, slavery, decadence, circus-bread corruption and mindless colonial expansion that we’ve heard all about, and are hardly so free of with our corporate today––just ask a Latin-American for instance![55] For it is possible within the perspectives opened up by Nietzsche, Freud, Lacan, as Silvia Ons puts it, to view a social-historical or individual neurosis of any kind: including the expressed acted-out, perverse-sadistic form that escapes when the Good is temporarily loosed of its repressive grip––and say to the would be Platonist: ‘No, not that, that’s not a cure, that’s a mirage; that’s sheer fantasy, resentment, spite; that’s not a cure it will only make things worse; worse in a different way, but worse nonetheless!’¶ By greater mindfulness then, with guided affirmation towards even that fearsome Freudian Thing that The Ethics of Psychoanalysis has us find now in our inner natures: we can eventually again say ‘Yes’-to-life in such the way that it overcomes the nihilism of not caring too much whether we as individuals or species live or die, whether we as culture or civilisation advance or decline. But we can only do this with fullest efficacy by freeing ourselves of all that wasted neurosis sickness that feels it must deny our Thing like aspect of the real: because from all those Christian-Platonic prejudices of the Good, it has been taught that such ‘things’ are too far beneath it. We must continue instead to train ourselves to stare the real directly in the face, without flinching, and that’s all we can do at least to start. For unless we can continue to utilise, sublimate, enjoy and get a positive, well-guided jouissance out of all aspects of life––including that Freudian Ding in our real––then the chances are we’re going to be at least in part, happy enough in no longer living it: offering not even a puff of genuine political praxis! We either face up to the death-drive snaking long beneath the dank, hidden history of the un-real, anti-real Good of Platonism––or let the disowned, un-understood drive resurge of its own volition until it accidentally finishes us!

#### The alternative is to embrace the Lack. Instead of lying and painting fantasies of creating a whole subject, we must accept our status as in a state of perpetual lacking. Acknowledge its existence in order to understand how it affects our actions is a prerequisite to action. All perms are incoherent because it’s a sequencing question, since if we don’t first embrace the lack, all attempt to fill the lack fail. Ruti 2

Ruti, Mari. "Winnicott with Lacan: Living Creatively in a Postmodern World." American Imago, vol. 67 no. 3, 2010, p. 353-374. Project MUSE, doi:10.1353/aim.2010.0016.

Let us consider Lacan first.1 As we know, Lacan’s theory of subject formation is premised on the notion of foundational lack or alienation. The transition from the Imaginary to the Symbolic—from preoedipal drives to the collective social space of signification and meaning production—is, for Lacan, a process of primordial wounding in the sense that the subject is gradually brought face to face with its own lack. While the internalization of the signifier brings the subject into existence as a creature of desire (thereby giving it access to a fully “human” existence), it simultaneously reveals that the surrounding world is much larger and more powerful than any individual subject could ever be—that the self is always merely a minor participant in a system of signification that operates quite independently of its “private” passions and preoccupations. In this manner, the signifier shatters the fantasies of omnipotence and wholeness that characterize the emerging ego of the mirror stage. One could, then, say that, in the Lacanian scenario, we purchase our social subjectivity at the price of narcissistic injury in the sense that we become culturally intelligible beings only insofar as we learn to love ourselves a bit less. It is worth noting right away that one of the things that drives a wedge between Lacan and Winnicott is that while Winnicott regards the ego as what allows the subject to enter into an increasingly complex relationship to the world, Lacan associates it primarily with narcissistic and overconfident fan- tasies that lend an illusory consistency to the subject’s psychic life. Lacan explains that the subject’s realization that it is not synonymous with the world, but rather a frail and faltering creature that needs continuously to negotiate its position in the world, introduces an apprehensive state of want and restless- ness that it finds difficult to tolerate and that it consequently endeavors to cover over by fantasy formations. In other words, because lack is devastating to admit to—because the subject experiences it as a debilitating wound—it is disposed to seek solace in fantasies that allow it to mask and ignore the reality of this lack. Such fantasies alleviate anxiety and fend off the threat of fragmentation because they enable the subject to consider itself as more unified and complete than it actually is; by concealing the traumatic split, tear, or rift within the subject’s psychic life, they render its identity (seemingly) reli- able and immediately readable. As a result, they all too easily lead the subject to believe that it can come to know itself in a definitive fashion, thereby preventing it from recognizing that “knowing” one version of itself may well function as a defense against other, perhaps less reassuring, versions. One consequence of the subject’s dependence on such ego- gratifying fantasies is that they mislead it to seek self-fulfillment through the famous *objet petit a*—the object cause of desire that the subject believes will return to it the precious sense of whole- ness that it imagines having lost.2 In this scenario, the subject searches for meaning outside of itself, in an object of desire that seems to contain the enigmatic *objet a*. Lacan’s goal, in this context, is to enable the subject to perceive that this fantasmatic quest for secure foundations is a waste of its psychic energies. His aim is to convince the subject that the *objet a* will never give it the meaning of its existence, but will, instead, lead it down an ever-widening spiral of existential deadends. How, then, does the Lacanian subject find meaning in its life? Lacan’s answer is that it is only by accepting lack as a precondition of its existence—by welcoming and embracing the primordial wound inflicted by the signifier—that the subject can begin to weave the threads of its life into an existentially evocative tapestry. It is, in other words, only by exchanging its ego for language, its narcissistic fantasies for the meaning mak- ing capacities of the signifier, that the subject can begin to ask constructive questions about its life.3 For Lacan, there are of course no definitive answers to these questions. But this does not lessen the value of being able to ask them. The fact that there is no stable truth of being does not prevent the subject from actively and imaginatively participating in the production of meaning. Lacan implies that it is precisely because the subject can never attain the truth of its being—because it can never achieve a state of transparent wholeness—that it is driven to look for substitutes that might compensate for its sense of lack; it is motivated to invent figures of meaning that can, momentarily at least, ease and contain the discomfort of alienation. In this paradoxical sense, rather than robbing the subject of its in- ner richness, lack is the underpinning of everything that is potentially innovative about human life.4 Indeed, it is possible to envision the intricate productions and fabrications of the human psyche as vehicles through which the foundational lack of existence assumes a positive and tangible form. This in turn suggests that the subject’s ability to dwell within lack without seeking to close it is indispensable for its psychic vitality. As a matter of fact, such dwelling within lack could be argued to be the greatest of human achievements, for it transforms the terrors and midnights of the spirit into symbolic formations, imaginative undertakings, and sites of delicate beauty that make the world the absorbing and spellbinding place that it—in its most auspicious moments at least—can be. It is thus because the subject lacks that it is prompted to create, and it is through its creative activity that it manages, in an always necessarily precarious manner, to withstand its lack. In this context, it is important to specify that the translation of lack into creativity is not a matter of dialectical redemption in the sense of giving the subject the ability to turn negativity into a definitive form of positivity. The subject’s attempts to name its lack are transient at best, giving it access to no permanent meaning, no solid identity, no unitary narrative of subjective constitution. Any fleeting state of fullness or positivity that the subject may be able to attain must always in the end dissolve back into negativity; any endeavor to erase lack only gives rise to new instances of lack. This implies that the process of filling lack must by necessity be continually renewed. It cannot be brought to an end for the simple reason that the subject can never forge an object or a representation that would once and for all seal this lack. However, far from being a hindrance to existential vitality, this intrinsic impossibility—the fact that every attempt to redeem lack unavoidably falls short of its mark—is what allows us, over and again, to take up the endless process of signification. From this point of view, lack serves as a fertile kind of emptiness that keeps our subjectivities mobile. Lacan’s rendering of the subject’s relation to the signifier is therefore complex in the sense that although he consistently accentuates the subject’s relative helplessness vis-à-vis the larger systems of signification that envelop it, he at the same time sug- gests that it is only by virtue of its membership in the Symbolic order that the subject possesses the capacity to make meaning in the first place. The Symbolic, in other words, is not merely (or even primarily) a hegemonic structure that coerces the subject into its law, but also—as I have endeavored to illustrate—the foundation of its creative potentialities. *Lacan in fact insists that though the subject can never master the signifier—let alone the signified—it enjoys a certain degree of imaginative leeway with respect to the signifier. He describes this imagina- tive leeway as the subject’s capacity to make use of the “poetic function” of language (1953, 264)—the fact that language by definition perpetuates the radical slipperiness, multiplicity, and polyvalence of meaning*. In the same way that Heidegger (1971) connects creativity to the individual’s ability to dwell in the world in poetic rather than merely instrumental ways, Lacan envisions creativity in terms of the subject’s capacity to take a poetic approach to the world—an approach that is content to play with meaning without attempting to arrest it in unequivocal or transparent definitions. The fact that (the early) Lacan views the subject’s main existential task to be to come to terms with its lack explains in part why he tends to be so brutally dismissive of ego psychol- ogy. If Lacan criticizes the attempts of ego psychologists to shore up the subject’s ego, it is because he believes that they have gotten things entirely backwards: instead of helping the subject accept lack as constitutive of subjectivity, they intensify its existential confusion by reinforcing its narcissistic fanta- sies. Lacan contends that such an approach is fundamentally flawed in the sense that it hastens to close prematurely the void within the subject’s being rather than to foster the psychic and creative possibilities that arise from its capacity to experience this void. It promises the end of alienation instead of teach- ing the subject to live resourcefully with this alienation. Such a promise, Lacan suggests, is always deceptive and hollow, in the final analysis leaving the subject worse off than before. The “solution” that ego psychology offers to the subject’s sense of lack is therefore, for Lacan, merely the highest manifestation of the problem. It impedes, rather than advances, the subject’s potential for creative living.

### 2

#### Only the private sector can do it – governments lack incentive and the OST prohibits it

Eure 16 (, J., 2016. Space… the final frontier. [online] Campbell Law Observer. Available at: <http://campbelllawobserver.com/space-the-final-frontier/> [Accessed 28 December 2021] Jonathan Eure is a 2017 graduate of Campbell Law School, winner of the 2017 J. Bryan Boyd Award for Excellence in Legal Journalism, and served as a senior staff writer for the Campbell Law Observer. He lived in Morganton, in the foothills of North Carolina, before moving to Raleigh for law school. He earned BA’s in Political Science and History from the University of North Carolina at Chapel Hill, graduating in 2014. The summer after his first year of law school, Jonathan worked as a legislative research intern with Representative Rob Bryan in the North Carolina General Assembly. Jonathan now interns with the Honorable Paul Newby at the North Carolina Supreme Court. Jonathan is the Secretary for the Campbell Public Interest Law Student Association (CPILSA).)-rahulpenu

As a policy matter, though the **O**uter **S**pace **T**reaty uses lofty ideals to **bind** **nations** into mutual respect and perhaps even unity of purpose, focusing solely on those ideals discounts a key ingredient of the original space race. Promulgation of national ideology was the original motivator of the space race between the U.S. and the U.S.S.R. Without national ideology, prestige, or power as a motivating factor, there is really **no** **incentive** **for** the **governments** of major spacefaring nations **to** **spend** massive amounts of money over long periods of time **on** such risky endeavors as space **colonization**. For this reason, the **colonization** of Proxima b would more likely **fall** **to** private **corporations** with much to gain from the resources other worlds might offer. Private exploration of space becomes more of a reality each day, with private corporations such as SpaceX, Blue Origin, and Virgin Galactic testing new platforms for space travel. A **movement** has **grown** **up** **alongside** these private spacefaring **companies** **claiming** planets such as Proxima b might become a **new** **frontier**, where private citizens can stake their own personal claims. This movement has even **proposed** **legislation** in Congress. The “Space Settlement Prize Act,” which would **ultimately** **guarantee** that **any** **settlement** built privately on other planets, moons, asteroids, etc., would be **owned** **by** the private citizens or **corporations** **who** **claim** **them**. This act would likely function similarly to the Homestead Acts, which allowed settlers who worked unclaimed land, to buy that land at very little cost. Furthermore, these groups claim that they are **not** **subject** **to** the **O**uter **S**pace **T**reaty, as the treaty’s provisions only govern nations. “The language of the Outer Space Treaty does not forbid private claims on and settlement of celestial bodies, only national appropriations. Furthermore, nations themselves are answerable in case of any environmental damages.” It is an interesting theory, and these 21st century frontiersmen and women might be correct. The Outer Space Treaty does not only govern nations themselves, but national oversight of non-governmental organizations as well. As all private attempts at space colonization on Proxima b and any other celestial body would be through corporate entities. These corporate entities would certainly fall under the national mandate to authorize and continually supervise the operation of such groups. But just because governments must have some form of oversight in place to manage private space exploration corporations, does not mean there is a mandate to control the legal operation of such corporations. The language of the Outer Space Treaty does not forbid private claims on and settlement of celestial bodies, only national appropriations. Furthermore, nations themselves are answerable in case of any environmental damages. Nations can certainly pass laws regulating the actions of private corporations consistent with the Outer Space Treaty’s mandate, and in fact the U.S. is already considering and attempting to create policies governing private space craft and travel. The problem is that none of this law has become official yet.

#### Commercial mining solves extinction from scarcity, climate, terror, war, and disease. Turns Yan and ow on prob

Pelton 17—(Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PHD in IR from Georgetown).. Pelton, Joseph N. 2017. The New Gold Rush: The Riches of Space Beckon! Springer. Accessed 8/30/19.

Are We Humans Doomed to Extinction? What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artifi cial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. Th ere is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival. If one does not believe in spending money to probe the mysteries of the universe then perhaps we can try what might be called “calibrated greed” on for size. One only needs to go to a cubesat workshop, or to Silicon Valley or one of many conferences like the “Disrupt Space” event in Bremen, Germany, held in April 2016 to recognize that entrepreneurial New Space initiatives are changing everything [ 1 ]. In fact, the very nature and dimensions of what outer space activities are today have changed forever. It is no longer your grandfather’s concept of outer space that was once dominated by the big national space agencies. The entrepreneurs are taking over. The hopeful statements in this book and the hard economic and technical data that backs them up are more than a minority opinion. It is a topic of growing interest at the World Economic Forum, where business and political heavyweights meet in Davos, Switzerland, to discuss how to stimulate new patterns of global economic growth. It is even the growing view of a group that call themselves “space ethicists.” Here is how Christopher J. Newman, at the University of Sunderland in the United Kingdom has put it: Space ethicists have offered the view that space exploration is not only desirable; it is a duty that we, as a species, must undertake in order to secure the survival of humanity over the longer term. Expanding both the resource base and, eventually, the habitats available for humanity means that any expenditure on space exploration, far from being viewed as frivolous, can legitimately be rationalized as an ethical investment choice. (Newman) On the other hand there are space ethicists and space exobiologists who argue that humans have created ecological ruin on the planet—and now space debris is starting to pollute space. Th ese countervailing thoughts by the “no growth” camp of space ethicists say we have no right to colonize other planets or to mine the Moon and asteroids—or at least no right to do so until we can prove we can sustain life here on Earth for the longer term. However, for most who are planning for the new space economy the opinion of space philosophers doesn’t really fl oat their boat. Legislators, bankers, and aspiring space entrepreneurs are far more interested in the views of the super-rich capitalists called the space billionaires. A number of these billionaires and space executives have already put some very serious money into enterprises intent on creating a new pathway to the stars. No less than five billionaires with established space ventures—Elon Musk, Paul Allen, Jeff Bezos, Sir Richard Branson, and Robert Bigelow—have invested millions if not billions of dollars into commercializing space. They are developing new technologies and establishing space enterprises that can bring the wealth of outer space down to Earth. This is not a pipe dream, but will increasingly be the economic reality of the 2020s. These wealthy space entrepreneurs see major new economic opportunities. To them space represents the last great frontier for enterprising pioneers. Th us they see an ever-expanding space frontier that offers opportunities in low-cost space transportation, satellite solar power satellites to produce clean energy 24h a day, space mining, space manufacturing and production, and eventually space habitats and colonies as a trajectory to a better human future. Some even more visionary thinkers envision the possibility of terraforming Mars, or creating new structures in space to protect our planet from cosmic hazards and even raising Earth’s orbit to escape the rising heat levels of the Sun in millennia to come. Some, of course, will say this is sci-fi hogwash. It can’t be done. We say that this is what people would have said in 1900 about airplanes, rocket ships, cell phones and nuclear devices. The skeptics laughed at Columbus and his plan to sail across the oceans to discover new worlds. When Thomas Jefferson bought the Louisiana Purchase from France or Seward bought Alaska, there were plenty of naysayers that said such investment in the unknown was an extravagant waste of money. A healthy skepticism is useful and can play a role in economic and business success. Before one dismisses the idea of an impending major new space economy and a new gold rush, it might useful to see what has already transpired in space development in just the past five decades. The world’s first geosynchronous communications satellite had a throughput capability of about 500 kb / s. In contrast, today’s state of the art Viasat 2 —a half century later— has an impressive throughput of some 140 Gb/s. Th is means that the relative throughput is nearly 300,000 greater, while its lifetime is some ten times longer (Figs. 1.1 and 1.2 ). Each new generation of communications satellite has had more power, better antenna systems, improved pointing and stabilization, and an extended lifetime. And the capabilities represented by remote sensing satellites , meteorological satellites , and navigation and timing satellites have also expanded their capabilities and performance in an impressive manner. When satellite applications first started, the market was measured in millions of dollars. Today commercial satellite services exceed a quarter of a billion dollars. Vital services such as the Internet, aircraft traffi c control and management, international banking, search and rescue and much, much more depend on application satellites. Th ose that would doubt the importance of satellites to the global economy might wish to view on You Tube the video “If Th ere Were a Day Without Satellites?” [ 2 ]. Let’s check in on what some of those very rich and smart guys think about the new space economy and its potential. (We are sorry to say that so far there are no female space billionaires, but surely this, too, will come someday soon.) Of course this twenty-fi rst century breakthrough that we call the New Space economy will not come just from new space commerce. It will also come from the amazing new technologies here on Earth. Vital new terrestrial technologies will accompany this cosmic journey into tomorrow. Information technology, robotics, artificial intelligence and commercial space travel systems have now set us on a course to allow us humans to harvest the amazing riches in the skies—new natural resources, new energy, and even totally new ways of looking at the purpose of human existence. If we pursue this course steadfastly, it can be the beginning of a New Space renaissance. But if we don’t seek to realize our ultimate destiny in space, Homo sapiens can end up in the dustbin of history—just like literally millions of already failed species. In each and every one of the five mass extinction events that have occurred over the last 1.5 billion years on Earth, some 50–80 % of all species have gone the way of the T. Rex, the woolly mammoth, and the Dodo bird along with extinct ferns, grasses and cacti. On the other hand, the best days of the human race could be just beginning. If we are smart about how we go about discovering and using these riches in the skies and applying the best of our new technologies, it could be the start of a new beginning for humanity. Konstantin Tsiokovsky, the Russian astronautics pioneer, who fi rst conceived of practical designs for spaceships, famously said: “A planet is the cradle of mankind, but one cannot live in a cradle forever.” Well before Tsiokovsky another genius, Leonardo da Vinci, said, quite poetically: “Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.” The founder of the X-Prize and of Planetary Resources, Inc., Dr. Peter Diamandis, has much more brashly said much the same thing in quite diff erent words when he said: “The meek shall inherit the Earth. The rest of us will go to Mars.” The New Space Billionaires Peter Diamandis is not alone in his thinking. From the list of “visionaries” quoted earlier, Elon Musk, the founder of SpaceX; Sir Richard Branson, the founder of Virgin Galactic; and Paul Allen, the co-founder of Microsoft and the man who financed SpaceShipOne, the world’s first successful spaceplane have all said the future will include a vibrant new space economy. Th ey, and others, have said that we can, we should and we soon shall go into space and realize the bounty that it can offer to us. Th e New Space enterprise is today indeed being led by those so-called space billionaires , who have an exciting vision of the future. They and others in the commercial space economy believe that the exploitation of outer space may open up a new golden age of astral abundance. They see outer space as a new frontier that can be a great source of new materials, energy and various forms of new wealth that might even save us from excesses of the past. Th is gold rush in the skies represents a new beginning. We are not talking about expensive new space ventures funded by NASA or other space agencies in Europe, Japan, China or India. No, these eff orts which we and others call New Space are today being forged by imaginative and resourceful commercial entrepreneurs. Th ese twenty-fi rst century visionaries have the fortitude and zeal to look to the abundance above. New breakthroughs in technology and New Space enterprises may be able to create an “astral life raft” for humanity. Just as Columbus and the Vikings had the imaginative drive that led them to discover the riches of a new world, we now have a cadre of space billionaires that are now leading us into this New Space era of tomorrow. These bold leaders, such as Paul Allen and Sir Richard Branson, plus other space entrepreneurs including Jeff Bezos of Amazon and Blue Origin, and Robert Bigelow, Chairman of Budget Suites and Bigelow Aerospace, not only dream of their future in the space industry but also have billions of dollars in assets. These are the bright stars of an entirely new industry that are leading us into the age of New Space commerce. These space billionaires, each in their own way, are proponents of a new age of astral abundance. Each of them is launching new commercial space industries. They are literally transforming our vision of tomorrow. These new types of entrepreneurial aerospace companies—the New Space enterprises—give new hope and new promise of transforming our world as we know it today. The New Space Frontier What happens in space in the next few decades, plus corresponding new information technologies and advanced robotics, will change our world forever. These changes will redefi ne wealth, change our views of work and employment and upend almost everything we think we know about economics, wealth, jobs, and politics. Th ese changes are about truly disruptive technologies of the most fundamental kinds. If you thought the Internet, smart phones, and spandex were disruptive technologies, just hang on. You have not seen anything yet. In short, if you want to understand a transition more fundamental than the changes brought to the twentieth century world by computers, communications and the Internet, then read this book. There are truly riches in the skies. Near-Earth asteroids largely composed of platinum and rare earth metals have an incredible value. Helium-3 isotopes accessible in outer space could provide clean and abundant energy. There is far more water in outer space than is in our oceans. In the pages that follow we will explain the potential for a cosmic shift in our global economy, our ecology, and our commercial and legal systems. These can take place by the end of this century. And if these changes do not take place we will be in trouble. Our conventional petro-chemical energy systems will fail us economically and eventually blanket us with a hydrocarbon haze of smog that will threaten our health and our very survival. Our rare precious metals that we need for modern electronic appliances will skyrocket in price, and the struggle between “haves” and “have nots” will grow increasingly ugly. A lack of affordable and readily available water, natural resources, food, health care and medical supplies, plus systematic threats to urban security and systemic warfare are the alternatives to astral abundance. The choices between astral abundance and a downward spiral in global standards of living are stark. Within the next few decades these problems will be increasingly real. By then the world may almost be begging for new, out of- the-box thinking. International peace and security will be an indispensable prerequisite for exploitation of astral abundance, as will good government for all. No one nation can be rich and secure when everyone else is poor and insecure. In short, global space security and strategic space defense, mediated by global space agreements, are part of this new pathway to the future.

#### Resource scarcity coming now and causes extinction—asteroid mining is the only way to solve

Crombrugghe 18 – Guerric, Business Development Manager Brussels, Brussels Capital Region, “Asteroid mining as a necessary answer to mineral scarcity”, LinkedIn, 1/11/2018, <https://www.linkedin.com/pulse/asteroid-mining-necessary-answer-mineral-scarcity-de-crombrugghe>

We need minerals, and we always will. Yet, our reserves are finite and a 100% end-of-life recycling rate is impossible to achieve. Eventually, new entrants will therefore be required to sustain our system. While the business case for asteroid mining can obviously not be closed with current technologies, it will someday become a necessity. We may as well start preparing ourselves. Scarcity of resources, the challenge of the 21st century According to the World Bank, in 2016 humanity's growth rate was of 1.18% in terms of population, and 2.50% in terms of GDP. Both of these, in turn, drive our staggering resource consumption: there are more of us, and each of us needs more. On the other, the Earth is a closed system, and resources are only available in a finite amount. We all know by now that there is only this much oil & gas, but the same can actually be said for water, arable land, minerals, etc. These two simple observations have sparkled the debate around the scarcity of resources. Even with the best intentions, mathematics teaches us that it is impossible to indefinitely extract resources from a given finite supply [1]. The problem arising in the short-term is the exhaustion of the existing supply. That limit is actually coming in fast. In a paper published in 2007, Stephen Kessler demonstrates that the global mineral reserves are only sufficient for the next 50 years. The figure on the right shows the ratio of known global reserve to global annual consumption, given a rough indication of adequacy in years. It dates from an earlier paper, published in 1994. Since then, the development of environmental-friendly technologies (e.g. batteries, electric engines, etc.) has drastically increased the consumption rate of high-tech metals such as cobalt, platinum, rare earths, or titanium. On the other hand, exploration programs have allowed to discover new deposits, notably of gold and diamond. We will certainly be able to continue to increase - or at least sustain - our reserves, but only temporarily. Recycling and other temporary fixes An obvious solution is recycling, i.e. rejuvenating our stocks. A popular concept to illustrate this idea is that of urban mining: retrieving the ores present in smartphones and other electronic devices. It may prove to be not only more environmental-friendly, be also safer and more cost-effective. Nevertheless, every solution based on recycling is, again, nothing more than a temporary fix, buying us a finite amount of time. The United Nations Environment Programme studied in a report the current recycling rate of 60 metals. More than half of them have an end-of-life recycling rate below 1%, and less than one-third are above 50%. Nickel, for example, is relatively easy to retrieve, with and end-of-life recycling rate of up to 63% under the best conditions. At that rate, less than 1% of the initial stock is available after only 10 cycle. Even with a staggering 99% efficiency, the same 1% limit is achieved in less than 460 cycles. Not bad, of course, but still not enough. Should our hunger for resources continue, and even with the most optimised recycling techniques, a second problem will arise in the longer term: the amount of resources needed at a given time will simply exceed the total available stock. Unless we manage to find growth vectors that do not require raw materials, that tipping point is an impassable limit. Its proximity obviously depends on our consumption rate. Asteroid mining? No matter which way we look at it, we will thus be short on resources, either through sheer exhaustion (i.e. transformation in an unrecoverable form) or because the demand will exceed the total reserves. We can - and should - talk about recycling, dematerialisation, and other more ethically questionable solutions such as bio-engineering. Nonetheless, no matter how good they are, these are only temporary fixes. If we don't radically change our lifestyle, we will sooner or later have to address the elephant in the room: the Earth is a closed system, we need new entrants. How can space help? Short answer: all these minerals can be found in space. Some are difficult to obtain, others are even more difficult, none are straightforward. The most accessible destination is near-Earth asteroids, a reservoir of over 17,000 known - and counting - giant rocks that regularly cross the orbit of our planet. They are commonly classified in three main families. The most interesting one, for our case, is that of the S-type asteroids. These are metallic bodies, containing first and foremost nickel, iron and cobalt, but also gold, ores from the platinum group. But the list doesn't stop there, many other minerals can be found in smaller amounts: iridium, silver, osmium, palladium, rhenium, rhodium, ruthenium, manganese, molybdenum, aluminium, titanium, etc. How do we get there? Let's take an example: Ryugu, formerly known as 1999 JU3. It's a C-type asteroid measured to be approximately one kilometre in size [2]. In addition to nickel, iron and cobalt, it also contains a fair share of water, nitrogen, hydrogen, and ammonia. Its total value is estimated to be approximately 80 billion USD. Fantastic! But how do we get there and, most importantly, how much does it cost? Well, we may have the start of an answer to these questions. Reaching Ryugu is a technological challenge, but it is feasible. In December 2014, the Japanese space agency has launched a spacecraft, Hayabusa2, heading to the asteroid. Its mission includes the collection of a small sample which will be sent back to the Earth, with a landing planned for December 2020. The target for the sample size is at least 100 µg. The total cost of the mission was projected to be around 200 million USD. That's 2 trillion USD per gram. Let's be optimistic and assume that the sample retrieved is pure gold. At today's rate, it is worth 42.5 USD per gram. That's a difference of over 10 orders of magnitude. Some may argue that Hayabusa2 has many other objectives that retrieving a sample. The mission does indeed include multiple landers, thorough scientific investigations, etc. There is actually another asteroid sample return mission underway, which we could you as a second point of comparison: OSIRIS-Rex, from NASA. It's heading for Bennu, also a C-type asteroid, which it will reach in August 2018. Total cost of the mission: 980 million USD. Target sample size: at least 60 g. We achieve thus roughly speaking 16 million USD per gram. Better, but still 6 orders of magnitude off compared to pure gold. It's pretty much as good as it gets with existing state-of-the-art technologies. Not much of a business case. Should we forget about it? Referring back to our earlier conclusion on resource scarcity, we had two options. Either we drastically reduce our resource consumption, to such a degree that reserves can last for longer than humanity itself, or we extend our closed system, the Earth, to nearby asteroids. In the current state of affairs, I am honestly not sure which course of action is the easiest. As they get increasingly rare, the cost of minerals will go up. On the other hand, as explained in a previous article, we can expect the cost of space activities to go steadily down. Step by step, these 6 orders of magnitude will slowly get munched away from both ends, until eventually asteroid mining becomes a viable operation. In other words: it will only become financially interesting once minerals become a thousand times more expensive and space activities a thousand times cheaper. As a point of reference, the introduction of reusable rockets by SpaceX, widely considered as one of the few truly disruptive changes in the aerospace sector in the last few decades, has "only" brought a cost reduction of 30%. While it's clearly amazing, we still need at least 220 innovations of the same calibre [3] before we can make it work (again: assuming the price of minerals simultaneously goes up by a factor of a thousand). It's therefore quite likely that space mining will not take place within our lifetime [4]. How can we accelerate the process? Firstly, we can only celebrate and support the numerous private initiatives which contribute to make that reality happen, either indirectly (e.g. launchers, space systems, etc.) or directly (e.g. in-space manufacturing, lunar exploration, etc.). Shout out to all the folks who manage to keep the flame of space exploration burning while generating profit for their investors. Secondly, space agencies and other institutional actors should continue to act as promoters of pioneering mission such as Hayabusa2, OSIRIS-REx, or DART. We can only regret that the Asteroid Redirect Mission from NASA and the Asteroid Impact Mission from ESA were not funded. From my perspective, these should actually be amongst the top priorities of our space exploration agenda. Not only are they instrumental to our understanding of the solar system, but they are also essential if we want to avoid the same fate as the dinosaurs. It's a question of survival. As a bonus, they also pave the way towards cost-efficient asteroid mining. In the meantime, we might want to consume existing resources a bit more efficiently.

#### Resource Shortages Exacerbate Conflict

Wingo 13 - Dennis Wingo, Former CTO of the Orbital Recovery Corporation, Founder & CEO of Skycorp Inc, and Greentrail Energy Inc., Co-Founder & CTO of Orbital Recovery Inc. Leader of NASA's the Lunar Orbiter Image Recovery Project (LOIRP), First in history to rescue and operate a spacecraft (ISEE-3) in interplanetary space, and University of Alabama in Huntsville Consortium for Materials Development in Space Researcher At University of Alabama in Huntsville Consortium for Materials Development in Space “Commentary | The Inevitability of Extraterrestrial Mining”, *Space News*, 7/29/2013, https://spacenews.com/36511the-inevitability-of-extraterrestrial-mining/

I am honored to provide the counterpoint to my esteemed colleague Ambassador Roger Harrison’s negative contention concerning the mining of extraterrestrial materials off of planet Earth. Let’s begin with his ending: “The conclusion is inescapable, though liable to be escaped, i.e., that raw materials will never be mined in space and sold profitably within the atmosphere or anywhere else. … Asteroids will continue unvexed in their obits, and the Moon too.” I bring a different quote, from the book “Empire Express,” the story of the intercontinental railroad, from U.S. Army Lt. Zebulon Pike, for whom Pike’s Peak is named: “In various places there were tracts of many leagues, where the wind had thrown up sand in all the fanciful forms of the ocean’s rolling wave, and on which not a spear of vegetable matter existed.” Pike’s visions of sand dunes, pathless wastes and sterile soils were reported, widely read and faithfully believed by geographers. The myth became innocently embellished by subsequent visitors, especially those in the party of Maj. Stephen H. Long, who traversed the whole area in 1820. It was reported to be “an unfit residence for any but a nomad population … forever to remain the unmolested haunt of the native hunter, the bison, and the jackal.” The delicious irony is that Mr. Harrison today lives in the shadow of Pike’s Peak, and the U.S. Air Force Academy where he teaches is in the middle of the confidently prophesied unmolested haunt. When Long’s report was written, the Erie Canal across New York was five years from completion and it was another 31 years before the first railroad was completed across the state. Mr. Harrison’s technical objections are for the most part valid today for his scenario, just as objections to a railroad across the North American continent were valid in the 1820s. However, technology is being developed today that will enable extraterrestrial mining, manufacturing and development just as technology was developed that would enable the creation of the national railroad. Mr. Harrison says it is an illusion that we are running out of resources. He is correct. That is not our claim. The claim is that extraction costs of economically viable terrestrial resources are rising dramatically and may soon exceed the cost of extraction from much more plentiful extraterrestrial sources. Today rapidly advancing costs and diminishing returns are rapidly redefining mining due to diminishing ore grades. This fact is developed in a 2012 distinguished lecture by Dan Wood before the Society of Environmental Geologists, “Crucial Challenges to Discovery and Mining — Tomorrow’s Deeper Ore Bodies.” This is a vitally important issue to solve as resource conflict has been the impetus for most wars in human history. We live in a global civilization of over 7 billion people, which will expand to over 9 billion before plateauing in mid-century. While American politicians are not paying attention to what this means, the rest of the world is noticing. Gross domestic product (GDP) growth and increasing global resource demand are addressed in “Iron Ore Outlook 2050,” a report commissioned for the Indian government. The GDP of the major powers (the United States, Europe, China, India and Japan) is forecast to rise from $48 trillion in 2010 to $149 trillion by 2050. The report’s substance is that with this massive increase in global GDP, an intensifying scramble for metal resources is inevitable. If the trend of resource consumption demand increase continues unabated, there are three likely potential outcomes. The first is collapse, forecast by the “Limits to Growth” school of thought. The second and more likely scenario is fierce national economic competition leading to wars over diminishing resources. The third, and most desirable, is to increase the global resource base by the economic and industrial development of the inner solar system. Mr. Harrison uses cost as the primary reason that extraterrestrial mining will never happen by focusing on a straw man argument related to mining asteroids in orbits far from Earth. Just as the U.S. railroad infrastructure began on shorter routes with lower capital requirements and shorter payback periods, asteroid mining can begin with our nearest neighbor, the Moon, where telepresence robotics, high-bandwidth communications and a short three-day trip for humans negate his premise. We know from the Apollo samples that plentiful metallic asteroidal materials exist in the lunar highlands. We also know from several missions that extensive water, titanium, thorium, uranium, aluminum and native iron all exist on the Moon, in easily separable oxide form. Improvements in remote sensing data from current missions and computer modeling continue to increase the amount of potential asteroidal material on the Moon, increasing confidence in the Moon first premise. The extensive resources of the Moon become the catalyst for an inner solar system-wide economy providing fuel, vehicles and the all-important experience in developing an industrial infrastructure off planet. The asteroids then become the force multiplier of inner solar system development with billions of tons of water, metals and free space energy from solar power. Mars figures in here as well as the second home of humanity, creating further demand for asteroidal resources, and providing something else that is becoming increasingly scarce on the Earth: hope for the future. The technical barriers that Mr. Harrison points to are being overcome just as those of the 19th century were. New technology developments in 3-D printing, additive manufacturing and advanced robotics are breaking down the final barriers to exploiting off-planet resources and indeed the industrial development of the inner solar system. It is not a question if, it is a question of when, and by whom. Just as the Pacific Railway Act of 1862 was a primary catalyst for a century of American economic growth, it should be the role of government to develop policies and concrete legislation to support this development for the continued health of the American economy and the future of all mankind.

#### Those Conflicts go Nuclear

Klare 13 – Michael T., professor emeritus of peace and world-security studies at Hampshire College and senior visiting fellow at the Arms Control Association in Washington, DC, " How Resource Scarcity and Climate Change Could Produce a Global Explosion", *The Nation*, 4/22/2013, <https://www.thenation.com/article/how-resource-scarcity-and-climate-change-could-produce-global-explosion/> JHW

Resource Shortages and Resource Wars Start with one simple given: the prospect of future scarcities of vital natural resources, including energy, water, land, food and critical minerals. This in itself would guarantee social unrest, geopolitical friction and war. It is important to note that absolute scarcity doesn’t have to be on the horizon in any given resource category for this scenario to kick in. A lack of adequate supplies to meet the needs of a growing, ever more urbanized and industrialized global population is enough. Given the wave of extinctions that scientists are recording, some resources—particular species of fish, animals and trees, for example—will become less abundant in the decades to come, and may even disappear altogether. But key materials for modern civilization like oil, uranium and copper will simply prove harder and more costly to acquire, leading to supply bottlenecks and periodic shortages. Oil—the single most important commodity in the international economy—provides an apt example. Although global oil supplies may actually grow in the coming decades, many experts doubt that they can be expanded sufficiently to meet the needs of a rising global middle class that is, for instance, expected to buy millions of new cars in the near future. In its 2011 World Energy Outlook, the International Energy Agency claimed that an anticipated global oil demand of 104 million barrels per day in 2035 will be satisfied. This, the report suggested, would be thanks in large part to additional supplies of “unconventional oil” (Canadian tar sands, shale oil and so on), as well as 55 million barrels of new oil from fields “yet to be found” and “yet to be developed.” However, many analysts scoff at this optimistic assessment, arguing that rising production costs (for energy that will be ever more difficult and costly to extract), environmental opposition, warfare, corruption and other impediments will make it extremely difficult to achieve increases of this magnitude. In other words, even if production manages for a time to top the 2010 level of 87 million barrels per day, the goal of 104 million barrels will never be reached and the world’s major consumers will face virtual, if not absolute, scarcity. Water provides another potent example. On an annual basis, the supply of drinking water provided by natural precipitation remains more or less constant: about 40,000 cubic kilometers. But much of this precipitation lands on Greenland, Antarctica, Siberia and inner Amazonia where there are very few people, so the supply available to major concentrations of humanity is often surprisingly limited. In many regions with high population levels, water supplies are already relatively sparse. This is especially true of North Africa, Central Asia and the Middle East, where the demand for water continues to grow as a result of rising populations, urbanization and the emergence of new water-intensive industries. The result, even when the supply remains constant, is an environment of increasing scarcity. Wherever you look, the picture is roughly the same: supplies of critical resources may be rising or falling, but rarely do they appear to be outpacing demand, producing a sense of widespread and systemic scarcity. However generated, a perception of scarcity—or imminent scarcity—regularly leads to anxiety, resentment, hostility and contentiousness. This pattern is very well understood, and has been evident throughout human history. In his book Constant Battles, for example, Steven LeBlanc, director of collections for Harvard’s Peabody Museum of Archaeology and Ethnology, notes that many ancient civilizations experienced higher levels of warfare when faced with resource shortages brought about by population growth, crop failures or persistent drought. Jared Diamond, author of the bestseller Collapse, has detected a similar pattern in Mayan civilization and the Anasazi culture of New Mexico’s Chaco Canyon. More recently, concern over adequate food for the home population was a significant factor in Japan’s invasion of Manchuria in 1931 and Germany’s invasions of Poland in 1939 and the Soviet Union in 1941, according to Lizzie Collingham, author of The Taste of War. Although the global supply of most basic commodities has grown enormously since the end of World War II, analysts see the persistence of resource-related conflict in areas where materials remain scarce or there is anxiety about the future reliability of supplies. Many experts believe, for example, that the fighting in Darfur and other war-ravaged areas of North Africa has been driven, at least in part, by competition among desert tribes for access to scarce water supplies, exacerbated in some cases by rising population levels. “In Darfur,” says a 2009 report from the UN Environment Programme on the role of natural resources in the conflict, “recurrent drought, increasing demographic pressures, and political marginalization are among the forces that have pushed the region into a spiral of lawlessness and violence that has led to 300,000 deaths and the displacement of more than two million people since 2003.” Anxiety over future supplies is often also a factor in conflicts that break out over access to oil or control of contested undersea reserves of oil and natural gas. In 1979, for instance, when the Islamic revolution in Iran overthrew the Shah and the Soviets invaded Afghanistan, Washington began to fear that someday it might be denied access to Persian Gulf oil. At that point, President Jimmy Carter promptly announced what came to be called the Carter Doctrine. In his 1980 State of the Union Address, Carter affirmed that any move to impede the flow of oil from the Gulf would be viewed as a threat to America’s “vital interests” and would be repelled by “any means necessary, including military force.” In 1990, this principle was invoked by President George H.W. Bush to justify intervention in the first Persian Gulf War, just as his son would use it, in part, to justify the 2003 invasion of Iraq. Today, it remains the basis for US plans to employ force to stop the Iranians from closing the Strait of Hormuz, the strategic waterway connecting the Persian Gulf to the Indian Ocean through which about 35 percent of the world’s seaborne oil commerce passes. Recently, a set of resource conflicts have been rising toward the boiling point between China and its neighbors in Southeast Asia when it comes to control of offshore oil and gas reserves in the South China Sea. Although the resulting naval clashes have yet to result in a loss of life, a strong possibility of military escalation exists. A similar situation has also arisen in the East China Sea, where China and Japan are jousting for control over similarly valuable undersea reserves. Meanwhile, in the South Atlantic Ocean, Argentina and Britain are once again squabbling over the Falkland Islands (called Las Malvinas by the Argentinians) because oil has been discovered in surrounding waters. By all accounts, resource-driven potential conflicts like these will only multiply in the years ahead as demand rises, supplies dwindle and more of what remains will be found in disputed areas. In a 2012 study titled Resources Futures, the respected British think-tank Chatham House expressed particular concern about possible resource wars over water, especially in areas like the Nile and Jordan River basins where several groups or countries must share the same river for the majority of their water supplies and few possess the wherewithal to develop alternatives. “Against this backdrop of tight supplies and competition, issues related to water rights, prices, and pollution are becoming contentious,” the report noted. “In areas with limited capacity to govern shared resources, balance competing demands, and mobilize new investments, tensions over water may erupt into more open confrontations.” Heading for a Resource-Shock World Tensions like these would be destined to grow by themselves because in so many areas supplies of key resources will not be able to keep up with demand. As it happens, though, they are not “by themselves.” On this planet, a second major force has entered the equation in a significant way. With the growing reality of climate change, everything becomes a lot more terrifying. Normally, when we consider the impact of climate change, we think primarily about the environment—the melting Arctic ice cap or Greenland ice shield, rising global sea levels, intensifying storms, expanding desert and endangered or disappearing species like the polar bear. But a growing number of experts are coming to realize that the most potent effects of climate change will be experienced by humans directly through the impairment or wholesale destruction of habitats upon which we rely for food production, industrial activities or simply to live. Essentially, climate change will wreak its havoc on us by constraining our access to the basics of life: vital resources that include food, water, land and energy. This will be devastating to human life, even as it significantly increases the danger of resource conflicts of all sorts erupting. We already know enough about the future effects of climate change to predict the following with reasonable confidence: \* Rising sea levels will in the next half-century erase many coastal areas, destroying large cities, critical infrastructure (including roads, railroads, ports, airports, pipelines, refineries and power plants) and prime agricultural land. \* Diminished rainfall and prolonged droughts will turn once-verdant croplands into dust bowls, reducing food output and turning millions into “climate refugees.” \* More severe storms and intense heat waves will kill crops, trigger forest fires, cause floods and destroy critical infrastructure. No one can predict how much food, land, water and energy will be lost as a result of this onslaught (and other climate-change effects that are harder to predict or even possibly imagine), but the cumulative effect will undoubtedly be staggering. In Resources Futures, Chatham House offers a particularly dire warning when it comes to the threat of diminished precipitation to rain-fed agriculture. “By 2020,” the report says, “yields from rain-fed agriculture could be reduced by up to 50%” in some areas. The highest rates of loss are expected to be in Africa, where reliance on rain-fed farming is greatest, but agriculture in China, India, Pakistan and Central Asia is also likely to be severely affected. Heat waves, droughts and other effects of climate change will also reduce the flow of many vital rivers, diminishing water supplies for irrigation, hydro-electricity power facilities and nuclear reactors (which need massive amounts of water for cooling purposes). The melting of glaciers, especially in the Andes in Latin America and the Himalayas in South Asia, will also rob communities and cities of crucial water supplies. An expected increase in the frequency of hurricanes and typhoons will pose a growing threat to offshore oil rigs, coastal refineries, transmission lines and other components of the global energy system. The melting of the Arctic ice cap will open that region to oil and gas exploration, but an increase in iceberg activity will make all efforts to exploit that region’s energy supplies perilous and exceedingly costly. Longer growing seasons in the north, especially Siberia and Canada’s northern provinces, might compensate to some degree for the desiccation of croplands in more southerly latitudes. However, moving the global agricultural system (and the world’s farmers) northward from abandoned farmlands in the United States, Mexico, Brazil, India, China, Argentina and Australia would be a daunting prospect. It is safe to assume that climate change, especially when combined with growing supply shortages, will result in a significant reduction in the planet’s vital resources, augmenting the kinds of pressures that have historically led to conflict, even under better circumstances. In this way, according to the Chatham House report, climate change is best understood as a “threat multiplier…a key factor exacerbating existing resource vulnerability” in states already prone to such disorders. Like other experts on the subject, Chatham House’s analysts claim, for example, that climate change will reduce crop output in many areas, sending global food prices soaring and triggering unrest among those already pushed to the limit under existing conditions. “Increased frequency and severity of extreme weather events, such as droughts, heat waves and floods, will also result in much larger and frequent local harvest shocks around the world….These shocks will affect global food prices whenever key centers of agricultural production area are hit—further amplifying global food price volatility.” This, in turn, will increase the likelihood of civil unrest. When, for instance, a brutal heat wave decimated Russia’s wheat crop during the summer of 2010, the global price of wheat (and so of that staple of life, bread) began an inexorable upward climb, reaching particularly high levels in North Africa and the Middle East. With local governments unwilling or unable to help desperate populations, anger over impossible-to-afford food merged with resentment toward autocratic regimes to trigger the massive popular outburst we know as the Arab Spring. Many such explosions are likely in the future, Chatham House suggests, if current trends continue as climate change and resource scarcity meld into a single reality in our world. A single provocative question from that group should haunt us all: “Are we on the cusp of a new world order dominated by struggles over access to affordable resources?” For the US intelligence community, which appears to have been influenced by the report, the response was blunt. In March, for the first time, Director of National Intelligence James R. Clapper listed “competition and scarcity involving natural resources” as a national security threat on a par with global terrorism, cyberwar and nuclear proliferation. “Many countries important to the United States are vulnerable to natural resource shocks that degrade economic development, frustrate attempts to democratize, raise the risk of regime-threatening instability, and aggravate regional tensions,” he wrote in his prepared statement for the Senate Select Committee on Intelligence. “Extreme weather events (floods, droughts, heat waves) will increasingly disrupt food and energy markets, exacerbating state weakness, forcing human migrations, and triggering riots, civil disobedience, and vandalism.” There was a new phrase embedded in his comments: “resource shocks.” It catches something of the world we’re barreling toward, and the language is striking for an intelligence community that, like the government it serves, has largely played down or ignored the dangers of climate change. For the first time, senior government analysts may be coming to appreciate what energy experts, resource analysts and scientists have long been warning about: the unbridled consumption of the world’s natural resources, combined with the advent of extreme climate change, could produce a global explosion of human chaos and conflict. We are now heading directly into a resource-shock world.

#### Mining solves Water Shortages

Kean 15 Sam Kean December 2015 "The End of Thirst" <https://www.theatlantic.com/magazine/archive/2015/12/the-end-of-thirst/413176/> (writer based in Washington DC for the Atlantic)//Elmer

Imagine turning on your tap and seeing no water come out. Or looking down into your village’s only well and finding it dust-dry. Much of the developing world could soon face such a scenario. According to the United Nations, 1.2 billion people already suffer from severe water shortages, and that number is expected to increase to 1.8 billion over the next decade, in part because of climate change. Developed countries probably won’t be immune. California and other states in the western U.S. are already experiencing extreme drought, and climate experts warn of even worse to come—multi-decade megadroughts. Mass migrations and wars over freshwater loom as real possibilities. Staving off disaster will require conservation, especially in agriculture, which consumes more than two-thirds of all the water humans use. Basic infrastructure maintenance would also go a long way: Some developing countries lose more than half their water through leaky pipes. But conservation and maintenance won’t solve all our water woes, especially as the planet warms and people continue to pack into cities. As a result, governments around the world are investing in new water-recycling and water-harvesting technologies. Here’s what the future of water might look like. 1. Drinking From the Sea … One obvious solution would be to drink ocean water. Converting seawater into freshwater by stripping out the salt—a process called desalination—offers several advantages. Roughly half the world’s population lives within 65 miles of an ocean, and saltwater accounts for about 97 percent of all water on Earth. Still, desalination presents obstacles. Older plants that boil seawater and collect the vapors, as many of those in the Middle East do, use ungodly amounts of energy. Newer plants that use reverse osmosis—whereby seawater is forced through membranes at high pressure—are more efficient, but still expensive and energy-intensive. The process also produces a briny waste that can harm marine life if not disposed of properly. We can nevertheless expect to see more desalination plants soon—thanks in part to Israel, which all but eliminated its chronic water shortages in the past decade by building four large reverse-osmosis plants, inspiring other countries to follow suit. A $1 billion plant operated by an Israeli company is about to open north of San Diego; it will be the largest in the Western Hemisphere, providing up to 50 million gallons of water a day to Californians. 2. … Or From the Toilet Instead of desalination, some experts favor recycling wastewater—cleaning the water from showers, washing machines, and, yes, toilets—for human consumption. Most water-recycling plants clean water in two basic ways. First, they force it through filters, some of which have holes hundreds of times narrower than a strand of human hair. These filters remove waste particles, organic chemicals, bacteria, viruses, and other dreck. Second, chemicals like hydrogen peroxide or ozone and pulses of ultraviolet light destroy any pathogens that have slipped through. Water recycling is a proven technology: California recycles hundreds of millions of gallons each day for irrigation and other uses. So what’s stopping recycled wastewater from going directly to our taps? Human psychology. The very idea of drinking it disgusts many people. They view such water as irredeemably dirty, little better than toilet water. In reality, recycled water is some of the cleanest drinking water around—as good as or better than the best bottled water. (Breweries in Oregon and California have plans to make beer with recycled water for this very reason—it’s so clean that it’s tasteless, a blank slate.) More to the point, recycled water is far purer than most tap water. By the time the water in the Mississippi reaches New Orleans, for instance, every drop has been used by cities along the river multiple times, and the treatment it gets before going through the taps is nowhere near as extensive as what a water-recycling plant provides. Singapore and Namibia have recycled water for years with no adverse health effects, and nasa began recycling water on the International Space Station in 2008. (The Russian cosmonauts there don’t recycle their pee, but they give the Americans bags of it to recycle and then drink.) In the United States, a few parched towns in Texas and New Mexico drink recycled wastewater already, and last year the city of San Diego—which gets most of its water from rivers that are running dry—approved a $3 billion recycling plant that would provide one-third of its tap water, 83 million gallons a day, by 2035. San Diego had rejected essentially the same plan in 1998, but this time the city decided it had no other choice. 3. Microbe Power Rather than filtering out organic waste, water-recycling plants might one day be able to break it down with microbes, a process that could bring an ancillary benefit: electric power. As they digest the gunk in wastewater, certain species of bacteria, called electricigens, can liberate electrons, the stuff of electricity. Producing electrons is actually common in nature—much of photosynthesis involves shuttling them around. Unlike plants, though, electricigens don’t store electrons internally. They use microscopic appendages that look like hairs to deposit the electrons onto external surfaces, usually minerals. In experimental fuel cells, scientists have replaced the minerals with wires and harvested electrons. Someday the bacteria might even generate enough power to run a water-recycling plant, making it self-sufficient. 4. Keeping It Simple Some up-and-coming water technologies are startlingly straightforward. People on arid plateaus, for instance, can string a fine plastic mesh between two posts and use it to capture water from fog that rolls through, collecting the drops in storage tanks. Existing systems in one small Guatemalan village can collect 6,300 liters a day, and more during the wet season. Scientists think that updating the mesh with new materials and tighter weaves could dramatically improve yields. People could even channel the water into hydroponic gardens to grow food. Imagine famously foggy San Francisco with a farm on every rooftop. Oil films present another low-tech opportunity. Reservoirs lose appalling amounts of water to evaporation: By some estimates, more water escapes into the air than is used by humans. But covering the surface with an extremely thin layer—even just one molecule thick—of nontoxic chemicals derived from coconut or palm oil can cut evaporative losses. Wind tends to break up layers of oil, re-exposing the water to the elements. But drones or blimps equipped with sensors could someday monitor reservoirs and signal where oil needed to be re-applied. In one recent test, spreading oil over a lake in Texas (via boats) appears to have cut evaporation by about 15 percent. 5. Making It Rain Of course, for every modest proposal to save water, there’s an audacious one floating around. Take weather modification. Advocates of the idea hope to significantly boost precipitation using a process called “cloud seeding”: spraying clouds with a chemical like silver iodide, which acts as a nucleus around which water droplets collect. The droplets then fall to Earth as rain or snow. That’s the theory, at least. The first large-scale experiments, in the 1940s, generated a lot of excitement. More recently, weather modification has been dogged by accusations of hype and questions about its reliability. A six-year program in Wyoming claimed to have squeezed 5 to 15 percent more precipitation out of the clouds it seeded. Unfortunately, conditions were suitable for seeding only 30 percent of the time, so the total increase in precipitation was closer to 3 percent. That’s not nothing, especially during droughts. But weather modification may be the flying car of water technology—a tantalizing idea that’s forever on the horizon. 6. The Moon Shot If Earth does run dry, we might be able to save ourselves by mining water from asteroids and comets. Scientists have landed probes on these space rocks to study them. Future landers could mine them in deep space or possibly even drag them back toward Earth. Though the idea sounds far-fetched, space-mining companies already exist, and one of them, Planetary Resources, expects to start harvesting resources from asteroids in about a decade. According to Planetary Resources, a single 1,600-foot-wide asteroid could yield more platinum than has ever been mined in human history. But water could prove to be the real prize for space-mining companies. Some astronomers believe that the asteroid Ceres, which sits between Jupiter and Mars, may contain more freshwater (as ice) than all of Earth does. In addition to quenching people’s thirst, this water could be turned into fuel for interplanetary spaceships. In that case, an ample supply of water would be the key to a happy future not just down here on the ground, but up among the stars as well.

#### Indo-Pak Water War goes Nuclear

Klare 20 — Five College professor emeritus of peace and world security studies, and director of the Five College Program in Peace and World Security Studies (PAWSS), holds a B.A. and M.A. from Columbia University and a Ph.D. from the Graduate School of the Union Institute. (Michael; Published: 2020; "Climate Change, Water Scarcity, and the Potential for Interstate Conflict in South Asia"; Journal of Strategic Security 13, No. 4, Pages 109-122; https://doi.org/10.5038/1944-0472.13.4.1826 Available at: https://scholarcommons.usf.edu/jss/vol13/iss4/8)//CYang

Interstate conflict over water might occur, the ICA indicated, when several states rely on a shared river system for much of their water supply and one or more of the riparian states sought to maximize the river’s flow for their own benefit at the expense of other states in the basin, amplifying any scarcities already present there. “We judge that as water shortages become more acute beyond the next ten years, water in shared basins will increasingly be used as leverage,” the ICA stated. An upstream state enjoying superior control over a river’s flow might exploit its advantage, say, to extract advantage in international negotiations or to attract international aid for infrastructure projects. As the ICA further noted, “…we assess that states will also use their inherent ability to construct and support major water projects to obtain regional influence or preserve their water interests.”16

The utilization of a state’s superior position in a shared river system to extract political or economic advantage can prove especially destabilizing, the ICA suggested, when weaker states in the system (typically the downstream countries) are especially vulnerable to water scarcity because of long-standing social, economic, and political conditions. Without identifying any particular states by name, the study suggested that this could occur when downstream states suffer from endemic corruption, poor water management practices, and systemic favoritism when it comes to the allocation of scarce water supplies. In such cases, any reduction in the flow of water by an upstream country could easily combine with internal factors in a downstream country to provoke widespread unrest and conflict. “Water shortages, and government failures to manage them, are likely to lead to social disruptions, pressure on national and local leaders, and potentially political instability,” the report noted.17

Although most discussion of the climate and water security nexus has continued to emphasize the risk of internal conflict arising from warming-related water scarcities, some analysts have pursued the line of inquiry introduced by the 2012 ICA, focusing on interstate tensions arising within shared river basins. This was a prominent theme, for example, of a 2013 study conducted by the National Research Council (NRC) on behalf of the IC. Entitled Climate and Social Stress: Implications for Security Analysis, the 2013 NRC report sought to better identify the links between global warming, pre-existing social vulnerabilities, and the likelihood of conflict. While it echoed earlier studies by the CNA and NIC in identifying internal factors like poverty, ethnic discord, and governmental ineptitude as likely pre-conditions for climate-related conflict, it also examined dangers arising from dependence on shared river systems, especially in cases where cooperation among the riparian powers in managing the system is limited and global warming is expected to reduce future water flows.18

For the NRC, the river systems of greatest concern in this respect were those that originate in the Himalayan Mountains and depend, for a significant share of the annual flow, on meltwater from the Himalayan glaciers. These glaciers are an important source of meltwater for many of Asia’s major rivers, including the Indus, Ganges, Brahmaputra, and

Mekong Rivers. These rivers originate in China but travel through India, Pakistan, Nepal, Bangladesh, Laos, Cambodia, Thailand, and Vietnam—countries with a combined population of over 3.4 billion people, or approximately 44 percent of the world’s total population.19 A large share of the population in these countries depends on agriculture for its livelihood, so ensuring access to adequate supplies of water is a prime local and national priority. During the monsoon season, heavy rains provide these rivers with abundant water, but during dry seasons they are dependent on glacial meltwater—and, with the rise in global temperatures, the Himalayan glaciers are melting, jeopardizing future water availability in these river basins. Given a history of ethnic and social discord within many of these countries and long-standing tensions among them, analysts fear that such shortages could aggravate both internal and external tensions and ignite interstate as well as intrastate conflict.20

As was the case of previous IC-initiated studies, the authors of the 2013 NRC report were reluctant to identify specific countries in their findings, referring again to “countries of security concern” or other such euphemisms. However, they did select one of these countries in particular: Pakistan. They chose that country for special analysis, the report indicated, because “Pakistan presents a clear example of a country where social dynamics and susceptibility to harm from climate events combine to create a potentially unstable situation.”21 Pakistan was said to suffer from multiple risk factors: Its economy is largely dependent on agriculture; much of the water used for irrigation purposes comes from just one source, the Indus River; control over the allocation of irrigation waters is often exercised by privileged elites, leaving millions of Pakistanis vulnerable to water shortages; and much of the water flowing into the Indus comes from China or from tributaries originating in India, leaving Pakistan in an unfavorable (downstream) position in the system. These conditions have led, in the past, to internal squabbles over water rights and to tensions with India over control of the Indus; now, with the likelihood of diminished meltwater from the Himalayan glaciers, the risk of water scarcity triggering violent conflict of one sort or another becomes that much greater.22

Pakistan, the Indus, and U.S. Security

There is no doubt that Pakistan is considered by U.S. security analysts as a “state important to U.S. national security interests,” the term used by the Defense Intelligence Agency to describe countries of concern in the 2012 ICA on water. Not only is Pakistan a critical—if not always wholehearted—partner in the global war on terror, but it also possesses a substantial arsenal of nuclear weapons whose security is a matter of enormous concern to American leaders.23 Should those munitions wind up with rogue elements of the Pakistani military (some of whose members are believed to maintain clandestine links to radical Islamic organizations), or even worse, should Pakistan descend into civil war and the weapons fall into untrustworthy or hostile hands, the safety of India and other US allies—as well as of American forces deployed in the region—would be at grave risk.24 Ensuring Pakistan’s stability therefore, has long been a major U.S. security objective, prompting regular deliveries of American arms and other military aid. Yet, despite billions of dollars in American aid, Pakistan remains vulnerable to social and ethnic internal strife.25

As noted, farming is the principal economic activity in Pakistan, and ensuring access to water is an overarching public and government concern. This means, above all, managing the use of the Indus—the country’s main source of water for irrigation and its major source of power for electricity generation. Pakistan’s rising population and growing cities, with their rings of factories, are placing an immense strain on the Indus, leading to competition between farmers, industrialists, and urban consumers. With water and power shortages becoming an increasingly frequent aspect of daily life, public protests—sometimes turning violent—have erupted across the country. In one particularly intense bout of rioting, following a prolonged power outage in June 2012, protestors burned trains, blocked roads, looted shops, and damaged banks and gas stations.26

However bad things might be in Pakistan today, climate change is likely to make conditions far worse in the years ahead. Prolonged droughts, climate scientists believe, will occur with increasing regularity, posing a severe threat to the nation’s agricultural sector and further reducing the supply of hydroelectric power. At the same time, warming is expected to increase the intensity of monsoon downpours, resulting in massive flooding (as occurred in 2010) and the loss of valuable topsoil, further adding to Pakistan’s woes. As the Himalayan glaciers melt, moreover, water flow through the Indus will diminish.27 With the competition for land and water resources bound to increase and with Pakistan already divided along ethnic and religious lines, widespread civil strife will become ever more likely, possibly jeopardizing the survival of the state.

It is impossible to predict exactly how the United States might respond to a systemic breakdown of state governance in Pakistan. One thing is clear, however: At the earliest sign that the country’s nuclear weapons are at risk of falling into the hands of hostile parties, the American military would respond with decisive force. In fact, research conducted by the nonpartisan Nuclear Threat Initiative (NTI) has revealed that the Joint Special Operations Command (JSOC) and specialized Army units have been training for such contingencies for some time and have deployed all the necessary gear to the region. In the event of a coup or crisis, the NTI revealed, “U.S. forces would rush into the country, crossing borders, rappelling down from helicopters, and parachuting out of airplanes, so they can secure known or suspected nuclear-storage sites.” Recognizing that any such actions by American forces could trigger widespread resistance by the Pakistani army and/or various jihadist groups, the U.S. Central Command, which has authority over all American forces in the region, has developed plans for backing up JSOC personnel with full-scale military support.28

Another scenario that has some analysts worried is the possibility that a time of sharply reduced water flow through the Indus will coincide with efforts by India to exploit its advantageous position as the upper riparian on three key tributaries of the Indus—the Ravi, the Beas, and the Sutlej—to divert water for its own use, thereby depriving downstream Pakistan of vital supplies and provoking a war between these two countries. India was granted control over the three tributaries under the Indus Water Treaty of 1960, and various Indian leaders have threatened at times to dam the rivers or otherwise reduce their flow into Pakistan as a reprisal for Pakistani attacks on Indian bases in the disputed territory of Kashmir (through which the tributaries flow); this, in turn, has provoked counter-threats from Pakistani leaders.29 What analysts fear most, in such a situation, is that India, possessing superior conventional forces, would overpower Pakistan’s equivalent armies, leading Pakistan’s leaders to order the use of nuclear weapons against India, igniting a regional nuclear war. Such a conflict, scientists have calculated, would result in 50 to 125 million fatalities, and produce a dust cloud covering much of the Earth, decimating global agriculture—an outcome with enormous implications for American national security.30