## Digital Divide DA (sv)

#### **Digital divides are growing, especially because of the pandemic.**

Li, C. (2021, October 11). *Worsening global digital divide as the US and China continue zero-sum competitions*. Brookings. Retrieved December 14, 2021, from https://www.brookings.edu/blog/order-from-chaos/2021/10/11/worsening-global-digital-divide-as-the-us-and-china-continue-zero-sum-competitions/ Cheng Li is the director of the John L. Thornton China Center and a senior fellow in the Foreign Policy program at Brookings. He is also a director of the National Committee on U.S.-China Relations. Li focuses on the transformation of political leaders, generational change, the Chinese middle class, and technological development in China. Li is also the author or the editor of numerous books. //ech

The COVID-19 crisis has interrupted daily life and business routines across the world, caused a massive loss of millions of lives, and exacerbated economic disparities within and between countries. **COVID-19 has also revealed fundamental challenges in the international order.** As Kissinger has asserted, “the world will never be the same after the coronavirus.” One can reasonably expect that cynicism regarding regional and global integration, as well as radical populism, racism, ultranationalism and xenophobia, will likely continue to rise around the world. At this critical juncture, it has become even more essential to examine the urgent challenges that the world confronts and to engage in global cooperation instead of devolving into constant contention and confrontation. **One of the most urgent tasks for the international community is to overcome growing digital divides. Digital divides in least developed countries (LDCs) have been particularly salient, as digitally disconnected populations have been left further behind during the pandemic. The U.S. and China, two superpowers in the digital era, should work in tandem with the international community to jointly combat digital divides and COVID-19. Despite the global growth of digital technologies, a 2021 United Nations report noted that nearly half of the world’s population, 3.7 billion people, lack internet access. Deficiency of digital connectivity is especially prevalent within LDCs, where more than 80% of the population are still offline.** In comparison, the unconnected population in developed countries and developing countries stands at 13% and 53%, respectively. LDCs account for about 14% of the world’s population, and they comprise more than half of the world’s extremely poor. **Digital divides both reflect and reinforce socioeconomic disparities. The pandemic has aggravated existing inequalities, often resulting in a widening gap of digital skills. As a result of COVID-19-induced economic difficulties, the population of extreme poor in LDCs expanded by 32 million, and the number of people in poverty in LDCs grew to 36% in 2020, 3% more than in prior years. More specifically, LDCs lag further behind in the following three areas.**

#### **Starklink and other private entity developments could bridge existing digital divides, but regulations are inhibiting them.**

Estes, A. C. (2020, September 26). *The pandemic is speeding up the space internet race*. Vox Recode. Retrieved December 14, 2021, from <https://www.vox.com/recode/2020/9/26/21457530/elon-musk-spacex-starlink-satellite-broadband-amazon-project-kuiper-viasat>. Adam Clark Estes is the deputy editor of Recode. He was previously a senior editor at Gizmodo, an associate editor at Motherboard, and a staff writer at The Atlantic Wire. //ech

**In vast swaths of the United States and the world, there are millions of people who don’t have reliable internet access.** These unconnected people aren’t just in far-flung places like rural America or New Zealand or sub-Saharan Africa, either. There are plenty of people living in dense city centers with limited access to affordable broadband. **The**[Covid-19](https://www.vox.com/coronavirus-covid19)**pandemic has brought new urgency to the challenge of getting everyone connected**, and while companies like Google and Facebook have floated far-out ideas for solving the problem, the internet technology that’s most promising is also one that’s already proven: satellite broadband. In early March, just days before cities across the US shut down due to the pandemic, **Elon Musk**[shared the latest details](https://arstechnica.com/information-technology/2020/03/musk-says-starlink-isnt-for-big-cities-wont-be-huge-threat-to-telcos/)**about his plan to build a satellite broadband service called Starlink. Speaking at a satellite conference in Washington, DC, Musk described how a constellation of Starlink satellites will “blink” when they enter low-Earth orbit**. As described, they almost sound like streaks of glitter in the night sky, or magic bands of flying gadgets that can beam internet down to anyone on the planet. Combined with improvements to existing technology like DSL, cable, and fiber — not to mention 4G and 5G cellular networks — **futuristic satellite broadband stands to bridge the digital divide in the US and elsewhere.** And because the pandemic has prompted explosive demand for better, more widely available internet connectivity, fast progress seems more inevitable than ever. Musk’s new satellites went online in early September, giving beta testers download speeds [that rival those of terrestrial broadband](https://www.theverge.com/2020/9/3/21419841/spacex-starlink-internet-satellite-constellation-download-speeds-space-lasers). **SpaceX has now put 700 Starlink satellites into orbit in the past 16 months and**[has plans to deliver](https://spacenews.com/spacex-submits-paperwork-for-30000-more-starlink-satellites/)**as many as 30,000 more in the next few years. More satellites mean more bandwidth and faster speeds, and eventually, SpaceX says, its low-Earth orbit satellite constellations could deliver high-speed internet to the entire US.** [Amazon](https://www.theverge.com/2019/4/4/18295310/amazon-project-kuiper-satellite-internet-low-earth-orbit-facebook-spacex-starlink), [Facebook](https://www.wired.com/story/facebook-confirms-its-working-on-new-internet-satellite/), and several startups have made similar promises in recent years. The concept of satellite-based internet service is actually decades old. However, **the innovative low-Earth orbit satellite technology being developed by SpaceX and others could be essential, if not transformative, for everything from telemedicine to remote learning in places that aren’t already connected.** [Satellite broadband](https://www.vox.com/recode/2020/9/10/21426810/internet-access-covid-19-chattanooga-municipal-broadband-fcc) could also be very profitable for whichever company figures it out first. One could imagine Amazon using satellite broadband to boost its Amazon Web Services (AWS) business, or Facebook using it to ensure that more people get on its platform. And if Musk gets his way, his Starlink constellations will generate billions of dollars in profits to fund his mission to colonize Mars. This all sounds futuristic, but satellite broadband is already a very real thing. In fact, if you’ve ever connected to wifi on a plane or cruise ship, you’ve probably used it. The basic idea is that ground stations connected to the internet, known as gateways, can send data up to a satellite which then relays that data to antennas somewhere else on the ground — or on a ship or an airplane. **The problem with this technological feat is that it’s all very expensive**. **It can cost** hundreds of millions of dollars to launch satellites into space, and that’s not even taking into account what it takes **to get over regulatory hurdles**. Plenty of companies have tried and failed to crack the business model in the past 20 years. But rather suddenly, the space internet game has changed. “**The Covid-19 crisis has significantly accelerated attention to and investment in satellite technology**,” Babak Beheshti, dean of the College of Engineering and Computing Sciences at the New York Institute of Technology, told Recode. Beheshti added that the number of launches had gone up tenfold from last year to this year. “Why? Because schools, local governments, and others suddenly needed to have broadband internet access in areas where there was really no infrastructure in place.”

#### **The digital divide amplifies gender inequality and leads to decreased women in STEM.**

**Gromova**, K., Anderson, R., & Gupta, G. (20**21**, November 4). *Opening a global conversation about the gender digital divide*. World Bank Blogs. Retrieved December 16, 2021, from <https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide>. Kate Gromova worked for more than 15 years at the intersection of economics, law, technology, and entrepreneurship development. Reyn is a born lawyer, digital development specialist, and excellent project manager. Garima is a corporate lawyer turned digital development enthusiast.  //ech

[**The COVID-19 pandemic showed how critical digital technologies are in today’s world — they kept businesses, education, government services, healthcare, and economies running despite the health crisis and global economic downturn.**](https://twitter.com/intent/tweet?text=The+COVID-19+pandemic+showed+how+critical+digital+technologies+are+in+today%E2%80%99s+world+%E2%80%94+they+kept+businesses%2C+education%2C+government+services%2C+healthcare%2C+and+economies+running+despite+the+health+crisis+and+global+economic+downturn.&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev)But it also shed light on another issue — many people and communities have been left out of their country’s digital transformation. Why is this a problem? Because economic development has become more dependent on digital technologies. **Those with limited or no access to technology are falling further and further behind. In many developing countries, women and girls fall into this category**. Barriers and constraints in accessing the internet impede their full participation in the social and economic life of their communities and countries. [**Today, we are seeing long-standing development gaps between men and women moving online. It is called the gender digital divide.**](https://twitter.com/intent/tweet?text=Today%2C+we+are+seeing+long-standing+development+gaps+between+men+and+women+moving+online.+It+is+called+the+gender+digital+divide.%20&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev)**Digital transformation can’t achieve its potential when half of the world’s population is excluded or limited from the process, making it an important and relevant topic in development.** [**Closing this divide is imperative for ensuring women and girls have better and more access to healthcare, education, jobs, and civic participation.**](https://twitter.com/intent/tweet?text=Closing+this+divide+is+imperative+for+ensuring+women+and+girls+have+better+and+more+access+to+healthcare%2C+education%2C+jobs%2C+and+civic+participation.&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev)**However,**[**bridging the gender digital divide is complex — its causes are multifactorial, and the mix of factors changes across a woman’s lifetime.**](https://twitter.com/intent/tweet?text=bridging+the+gender+digital+divide+is+complex+%E2%80%94+its+causes+are+multifactorial%2C+and+the+mix+of+factors+changes+across+a+woman%E2%80%99s+lifetime.&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev) These include the legal and regulatory environment, the availability and accessibility of affordable internet, digital skills development, relevant content, online safety and security, and opportunities for education and employment in the CT sector. **Cutting across all these factors are social and cultural norms and expectations concerning girls’ and women’s roles and their relationship to technology.** For instance, cost concerns may limit the number and sophistication of smartphones used in a household. When the supply of phones or computers is limited, women’s and girls’ access is not prioritized. [Affordability concerns can also impact internet availability for girls and women; lower-cost internet access plans are usually more restrictive in terms of service and are of lower quality.](https://twitter.com/intent/tweet?text=Affordability+concerns+can+also+impact+internet+availability+for+girls+and+women%3B+lower-cost+internet+access+plans+are+usually+more+restrictive+in+terms+of+service+and+are+of+lower+quality.+&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev)The poor user experience may decrease women’s interest—or appetite — in using the internet or seeing it as a valuable resource. Security and privacy concerns also creep in, like online harassment and cyberstalking. These threats further discourage women from becoming active internet users. [**The ability to use digital technologies productively and safely requires digital literacy, skills, and confidence that may not be provided or encouraged for women and girls.**](https://twitter.com/intent/tweet?text=The+ability+to+use+digital+technologies+productively+and+safely+requires+digital+literacy%2C+skills%2C+and+confidence+that+may+not+be+provided+or+encouraged+for+women+and+girls.&url=https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide/?cid=SHR_BlogSiteTweetable_EN_EXT&via=WBG_DigitalDev)**Pursuing STEM education may be actively discouraged, narrowing the pipeline of potential female leaders, role models in technology fields, and gender-based innovation.**

#### **Lessening the Digital divide helps solve poverty, especially in Africa, by creating jobs.**

**The World Bank**. (20**21**, September 24). *Narrowing the Digital Divide Can Foster Inclusion and Increase Jobs*. IBRD - IDA. Retrieved December 16, 2021, from https://www.worldbank.org/en/news/feature/2021/09/24/narrowing-the-digital-divide-can-foster-inclusion-and-increase-jobs//ech

**A growing body of evidence demonstrates that digital technologies can enable economic transformation in Africa and help create more jobs for its people**. **Digital technologies do so by helping all people, and especially lower-income and lower-skilled entrepreneurs and employees, work better and learn better, catalyzing adoption and productivity of complementary technologies.** World Bank country-level studies, on Nigeria, Senegal, and Tanzania, have analyzed the impact on jobs of mobile internet availability (3G or 4G coverage), including the poor and most vulnerable. **Studies show that both internet availability and use of more sophisticated digital technologies lead to more and better jobs for lower-income, lower-skilled people, and hence reduce poverty. Labor force participation and wage employment increased significantly in areas with internet availability after three years, relative to those with no coverage.** For example, digital technologies such as the use of local language videos on tablet computers and use of a decision support tool app on a smartphone can provide personalized advice resulting in better jobs, and an increase in crop yields of lower-income farmers. Although mobile internet availability has increased, Africa’s internet coverage still lags behind other regions—with digital divides in availability still an issue in remote and poorer areas in all countries. Yet uptake is a bigger problem today than coverage. Africa’s uptake gap has widened, both relative to other regions and relative to availability: while 70 percent of Africa’s regional population have availability of mobile internet, less than 25 percent are using it—resulting in an average uptake gap of almost 50 percent. This uptake gap is highest in rural areas and informal enterprises; it is also high for older and poorer women and rural households. There are growing digital divides in use between richer, urban, literate, and better educated households with electricity and poorer households without electricity. Three World Bank country-level studies, on Nigeria, Senegal, and Tanzania, have analyzed the impact on jobs of mobile internet availability (3G or 4G coverage). **Better jobs and earnings for some people are also associated with large effects on total household consumption and poverty reduction**. **One key takeaway is that the more digital access Africans have, the more likely they are to reduce poverty over time.**

#### **Internet and technological regimes manipulate lesser developed countries so they become dependent.**

**Wade**, R. H. (20**02**, December). *Bridging the Digital Divide: New Route to Development or New Form of Dependency?* (Global Governance Vol. 8; Research Report No. 04). Brill. <https://www.jstor.org/stable/27800358>. Robert Hunter Wade is a political economy and development scholar. He is currently Professor of Global Political Economy at the Department of International Development, London School of Economics. //ech

**In this section, I look at the impact of the global ICT industry and the international ICT regimes on LDCs. ICTs seem to have a large quotient of public goodness about them and therefore high spillover benefits.** "The Internet was created in the United States, but its cost-slashing consequences for information and communications enhance people's opportunities everywhere," in the words of the Human Development Re port.16 **This might be taken to imply that LDCs are not much disadvantaged by the structure of the global ICT regimes. Not so. In several ways, developing country users are being tied more tightly into hardware and software escalation with ramifications difficult to anticipate (like the more abstruse parts of derivatives markets). Escape is increasingly limited, and the costs grow as the dependence of the users increases. This is a new form of international digital dependence for which we need a new version of the 1970s dependency theory.** The U.S./Microsoft Privilege in Software Developing countries are placed at a growing disadvantage by the soft ware-hardware arms race in the global market for savvy computer users. The software is constantly being rewritten to take advantage of unused slack in memory and speed, and then the hardware manufacturers esca late the headroom so that the new software can run as fast. The result ing complexity is attractive to the minority of younger, wealthier, and better-educated people but is a deterrence for others, who perceive that software is actually getting worse for many word processing and spreadsheet uses because the new features cause glitches and slow downs. **The effect of this technological arms race is to keep widening the digital divide between the prosperous democracies and the rest of the world. Every time Microsoft comes out with a new version of its software that can only run on the latest generation of chip, LDCs either face more costly and hassle-filled communication with customers and suppliers in the OECD countries, or spend scarce foreign exchange to re place their old machines and software.** **This is an inbuilt gravitational force against their ascent across the digital and income divide.** It is where Microsoft is most abusing its monopoly power, checked only a little by the unorganized anger of the "orphans" left with incompatible document formats.17 Almost certainly the software-hardware race and the constant need for further investment represents a huge misallocation of resources, not only in LDCs but even in the OECD countries. The rush to upgrade software, and hence hardware, comes first from large companies, ostensibly because they "need" the new capabilities. Large multinationals promote the idea of twenty-four-hour global working, for which they need to have messages and designs winging their way to Tokyo as Los Angeles closes down, and vice versa. But the rush to upgrade software is probably driven as much by organizational pressures from ICT staff and from top managers. Since salaries are linked to budgets, ICT staff press for whatever keeps ICT budgets high and fully spent by year's end. The top managers worry that the "brand" of the company will be downgraded if the company does not boast the latest ICT. Smaller organizations have to follow this trend, because otherwise they have difficulties exchanging attachments and various other text- and graphics bearing bits of software with the large companies with which they do business

## Licensing cp

#### **CP text: States ought to introduce a licensing system where appropriation is decided using cost benefit analysis.**

**Leepuengtham 17**, Tosaporn. “International Space Law and Its Implications for Outer Space Activities.” *Elgar Online: The Online Content Platform for Edward Elgar Publishing*, Edward Elgar Publishing, 27 Jan. 2017, https://www.elgaronline.com/view/9781785369612/06\_chapter1.xhtml.

However, the situation might be more complex if an intellectual property work created involved using outer space resources as a component of its output. Take, as a hypothetical example: Scientist A, a national of the United States, discovers a process to produce nuclear power using Helium-3 as its major constituent. Helium-3 is known to be a valuable resource for generating nuclear power which is rare on earth, but abundant on the Moon.[80](https://www.elgaronline.com/view/9781785369612/06_chapter1.xhtml#Footnote_0080) The production of nuclear power using this process would be cost-effective if produced in outer space. But would the process of producing this nuclear power violate the non-appropriation principle if the Moon’s natural resources are taken as part of this process? A strict interpretation would see use of Helium-3 as a type of appropriation of the Moon’s resources, and so a breach of the non-appropriation obligation. But, if neither the production of such nuclear power nor intellectual property rights protecting the process are allowed, the world community would lose the benefit of this additional source of power. However, a compromise could be put forward which would allow exploitation of this intellectual property work based upon licensing. Any such licensing scheme would need to ensure third parties fair and equitable access to this process in order to uphold the principle of freedom of exploration and use, but with appropriate safeguards in place, exploitation via licensing would guarantee Scientist A an opportunity to enjoy some benefit from his effort and investment. The situation is essentially the same when considering application of the non-appropriation principle to remote sensing and satellite telecommunication. This is because situating a satellite in orbit within a specific spatial area could be considered as an appropriation of outer space, particularly when taking into account the fact that geostationary orbits are considered a ‘limited natural resource’, and access to such resources must comply with the International Telecommunication Union (ITU) Constitution.[81](https://www.elgaronline.com/view/9781785369612/06_chapter1.xhtml#Footnote_0081)

CASE

## At inequality

#### Resource extraction can reverse status quo poverty, especially in developing countries, even if they aren’t the ones participating

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[Annette. Space Resource Utilization: A View from an Emerging Space Faring Nation. Springer International Publishing. 2018. <https://books.google.com/books?id=z29GDwAAQBAJ>, accessed 6-25-21] //ear

According to the United Nations,31 the emerging nations mostly from the developing countries, like South Africa, Algeria, Kenya, Argentina, Egypt, etc**., look at space activities from development perspectives.** **They are able to invest in space applications to mitigate challenges relevant to their context like poverty; illiteracy; malnutrition; poor water supply; sanitation; health and disease (especially malaria); food, human, and water security; and natural disaster affecting millions of lives. This explains their meager expenditures to real space programs and their nonaggression in competing with those established countries.** **This** however is the compelling reason why they are not dominant in the international arena as we examine their political involvement in the US CSLCA of 2015 in the resource extraction of the outer space treaty. But for the purpose of this paper, it is indispensable to do an analysis of their national laws, agenda, and future perspectives in space affairs as per resource extraction which would now be compared whether such agree with US CSLCA of 2016 in resource extraction. Similarly to established countries in space exploration, emerging economies have also ratifications and signature to a number of treaties. **For example, Pakistan, Romania, Turkey, Kuwait, and Saudi Arabia have ratifications for OST, ARRA, LIAB, REG, and the Moon Treaty, while the Republic of Korea has ratification on all the treaties but the moon.** **The status quo of emerging countries as to asteroid mining and other outer space exploration remain as they were except a bold announcement by the government of Luxembourg on February 2016 declaring its intention to invest in space-based asteroid mining**.32 The statement however may mark a new era for support for asteroid mining in alliance with the USA by Luxembourg government since the report suggested that advisory board members in this mission included diplomats from Europe, America, and China. **This means although there is a specific national space interest in the emerging space countries, the prospect of “gold rush” for space resource extraction is a possibility, invariably meaning there would be adoption of US CSLCA and ratification in actual sense.**33 Let us watch and see! **Other countries to watch in African domain include South Africa, Nigeria, and Algeria in collaboration with the more established countries but only when space resource extraction would drive economic growth in the positive direction.**

## Climate change turn

#### L - Space Exploration directly creates innovation and increases technological knowledge

**I**nternational **S**pace **E**xploration **C**oordination **G**roup. (20**13**, September). //ear Benefits Stemming from Space Exploration. **Nasa.Gov**. Retrieved December 8, 2021, from <https://www.nasa.gov/sites/default/files/files/Benefits-Stemming-from-Space-Exploration-2013-TAGGED.pdf> ISECG is a collab between NASA and other governments space programs.

**To a great extent, the benefits from space exploration are rooted in the generation of new knowledge,** **which is the first reward and which has inherent value to humankind**. **Technological knowledge, generated when high‐performance space systems are developed to address the extreme challenges of space missions, yields many innovations that benefit the public.** Scientific knowledge acquired from space expands humankind's understanding of nature and frequently unlocks creative and useful Earth‐based applications for society. **In the longer term, the knowledge accumulated over many missions and the expansion of human presence into the Solar System help people gain perspective on the fragility and rarity of life in the Universe and on humankind's accomplishments, potential, and destiny**. **Space exploration stimulates the creation of both tangible and intangible benefits for humanity**. **Tangible impacts include all the innovation‐related applications and benefits resulting from investments in these programmes, such as new devices and services that spin off into the marketplace. In addition, space exploration leads to advances in science and technology, and furthers workforce development and industrial capabilities, thus leading to an overall stimulation of private companies and industries, all of which contributes significantly to the economic progress of space‐faring nations**. Space exploration is also known to attract young people into careers in science and technology to the general benefit of society and the economy (see chapter 2.1). Space exploration also results in various intangible impacts due to the social and philosophical dimensions that address the nature and meaning of human life. Intangible benefits include the enriching of culture, the inspiration of citizens, and the building of mutual understanding as a result of international cooperation among space‐faring nations. The fundamental benefits generated by space exploration are grouped in this document as follows: (i) innovation; (ii) culture and inspiration; and (iii) new means to address global challenges. The delivery of these benefits to society provides the main rationale for investment in space exploration. An illustration on how these benefits are delivered by space agencies is given in the box below. Space exploration’s capacity to continue delivering significant benefits to humanity was recognized by high‐level government representatives from around the world when they convened in Lucca, Italy, in November 2011. They concluded that space exploration provides:

#### IL - Technology developed in space innovation is key to resolve climate change

**Derr**, E. (20**21**, **September 17**). Space is Crucial to Understanding Climate Change. Nuclear Energy Institute. Retrieved December 9, 2021, from <https://www.nei.org/news/2021/space-is-crucial-to-understanding-climate-change> //ear Emma Derr works as a Manager, Digital Communications at Nuclear Energy Institute, which is a Membership Organizations company with an estimated 133 employees; and founded in 1994. They are part of the Digital Marketing team within the Marketing Department and their management level is Manager. Emma is currently based in Washington, D.C., United States.

**Space developments in the last two decades have greatly contributed to our** [**understanding of our planet’s climate**](https://climate.nasa.gov/evidence/). **Satellite imaging, space exploration, and new technologies give us an idea of the big picture and how we can adapt to address climate change**. **For example, satellites in space have played a critical role in our understanding of the causes of global warming by providing us with a large body of data to examine the variations in the Earth’s orbit.** **Data from these** [**capabilities**](https://www.thespacereview.com/article/4230/1) **were essential inputs into the Intergovernmental Panel on Climate Change’s (IPCC) recent** [**report**](https://www.ipcc.ch/report/ar6/wg1/#SPM) **that focused on how the physical science of climate change informs likely impacts under five different emissions scenarios. The report also found that climate change is happening quicker than we thought, making the need to reduce emissions imminent. To address this, space infrastructure such as** [**positioning, navigation, and timing**](https://www.transportation.gov/pnt/what-positioning-navigation-and-timing-pnt#:~:text=While%20PNT%20encompasses%20so%20much,GPS%20is%20a%20major%20component.&text=%E2%80%9CA%20U.S.%2Downed%20utility%20that,segment%2C%20and%20the%20user%20segment.) **(PNT) can help identify efficient transportation routes and sources of emissions, ultimately aiding mitigation efforts.** Time Progression of the Ozone Hole Over Antarctica This series of images shows the size and shape of the thinning ozone layer over Antarctica each year from 1979-2019. Red and yellow areas indicate the ozone hole. Credit to nasa.gov. NASA’s [Earth System Observatory](https://www.nasa.gov/press-release/new-nasa-earth-system-observatory-to-help-address-mitigate-climate-change), the next generation of Earth science satellites that will launch in the next decade, reflect the importance of Earth imaging. This constellation of satellites is designed to provide information about our planet ranging from the location of forest fires to the sea level rise to our agricultural processes. It will be able to collect data at the regional and local levels and connect critical interactions between the atmosphere, land, ocean and ice, significantly bolstering our understanding of the Earth’s climate. **Another large** [**focus**](https://www.axios.com/white-house-nasa-earth-science-satellites-climate-c560c9d8-2dfd-4964-bfcf-fd6cb54117e5.html) **of the initiative is predicting severe weather and answering questions surrounding aerosols, which are particles in the atmosphere that are a key source of uncertainty in predicting climate change**. Alongside adding funding to FEMA, the Biden Administration [announced](https://www.whitehouse.gov/briefing-room/statements-releases/2021/05/24/fact-sheet-biden-administration-invests-1-billion-to-protect-communities-families-and-businesses-before-disaster-strikes/) the development of the Earth System Observatory, indicating its support for the program in understanding how climate change is impacting communities. **Space exploration is foundational to climate science because it provides us with more information about the Earth, our solar system and the role of gases in our atmosphere, and nuclear energy has played an important role powering our missions into space.** In 1969, NASA launched [Nimbus III](https://rps.nasa.gov/missions/8/nimbus-iii/), a nuclear-powered spacecraft, that is the first U.S. satellite to gather vital oceanographic data, such as measurements of sea ice and the ozone layer. The spacecraft also measured atmospheric temperature, water vapor and ozone, as well as the amount of ultraviolet radiation reaching our atmosphere from the sun. [Cassini](https://solarsystem.nasa.gov/missions/cassini/overview/), a nuclear-powered probe into Saturn and its moons, released the Huygens probe which collected important data about what earth may have looked like in its state before humans evolved. The mission revealed Titan to be one of the most Earth-like worlds we’ve encountered and has shed light on the history of our home planet. Nuclear energy has powered dozens of interplanetary missions, which have gathered critical information about our universe. These make up some of the most successful and inspiring missions in U.S. space exploration history. **Climate and space technologies build off of each other, as evidenced by solar photovoltaic panels first gaining a foothold in the space industry. Nuclear energy can be positioned to experience such a catalyst with** [**new investments**](https://www.nei.org/news/2021/nuclear-taking-us-faster-and-farther-into-space) **in nuclear space technologies. As climate change intensifies, space exploration and Earth observation will become** [**increasingly important**](https://www.axios.com/space-critical-to-climate-science-2051-0361889a-5ae9-47eb-960f-e83f1b6779c7.html) **to gathering critical data. We must meet the moment by investing in these missions and recognizing nuclear power’s important role in space technologies.**

## AT - Extinction impacts

#### Large-scale threats of future suffering perpetuate capitalist violence and the hegemonic power of the elite, endlessly prolonging suffering. The only response is to interrupt the system, insisting that the urgent bodies across the globe cannot wait

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Though toileting might be thought of as a special case of bodily urgency, geographic research suggests that the body is increasingly set at odds with larger scale ethical concerns, especially **large-scale future events of forecasted suffering**. Emergency planning is a particularly good example in which the large-scale threats of future suffering can **distort moral reasoning**. Žižek (2006) lightly develops this point in the context of the war on terror, where in the presence of fictitious and real ticking clocks and warning systems, the urgent body must be **bypassed** because there are **bigger scales to worry about**:¶ What does this all-pervasive sense of urgency mean ethically? The pressure of events is so overbearing, the stakes are so high, that they nec essitate a suspension of ordinary ethical concerns. After all, displaying moral qualms when the lives of millions are at stake plays into the hands of the enemy. (Žižek, 2006)¶ In the presence of large-scale future emergency, the urgency to secure the state, the citizenry, the economy, or the climate creates new scales and new temporal orders of response (see Anderson, 2010; Baldwin, 2012; Dalby, 2013; Morrissey, 2012), many of which treat the urgent body as impulsive and thus requiring management. McDonald’s (2013) analysis of three interconnected discourses of ‘climate security’ illustrates how bodily urgency in climate change is also recast as a menacing impulse that might require exclusion from moral reckoning. The logics of climate security, especially those related to national security, ‘can encourage perverse political responses that not only fail to respond effectively to climate change but may present victims of it as a threat’ (McDonald, 2013: 49). **Bodies that are currently suffering cannot be urgent**, because they are **excluded from the potential collectivity** that could be **suffering everywhere in some future time**. Similar bypassing of existing bodily urgency is echoed in writing about violent securitization, such as drone warfare (Shaw and Akhter, 2012), and also in intimate scales like the street and the school, especially in relation to race (Mitchell, 2009; Young et al., 2014).¶ As large-scale urgent concerns are institutionalized, the urgent body is increasingly obscured through technical planning and coordination (Anderson and Adey, 2012). The predominant characteristic of this institutionalization of large-scale emergency is a ‘built-in bias for action’ (Wuthnow, 2010: 212) that circumvents contingencies. The urgent body is at best an assumed eventuality, one that will likely require another state of waiting, such as triage (e.g. Greatbach et al., 2005). Amin (2013) cautions that in much of the West, governmental need to provide evidence of laissez-faire governing on the one hand, and assurance of strength in facing a threatening future on the other, produces ‘just-in-case preparedness’ (Amin, 2013: 151) of neoliberal risk management policies. In the US, ‘personal ingenuity’ is built into emergency response at the expense of the poor and vulnerable for whom ‘[t]he difference between abjection and bearable survival’ (Amin, 2013: 153) will not be determined by emergency planning, but in the material infrastructure of the city.¶ In short, the urgencies of the body provide justifications for social exclusion of the most marginalized based on impulse and perceived threat, while large-scale future emergencies effectively absorb the deliberative power of urgency into the institutions of preparedness and risk avoidance. Žižek references Arendt’s (2006) analysis of the banality of evil to explain the current state of ethical reasoning under the war on terror, noting that people who perform morally reprehensible actions under the conditions of urgency assume a ‘tragic-ethic grandeur’ (Žižek, 2006) by sacrificing their own morality for the good of the state. But his analysis fails to note that bodies are today so rarely legitimate sites for claiming urgency. In the context of the **assumed priority of the large-scale future emergency**, the urgent body becomes **literally nonsense, a non sequitur** within societies, states and worlds that will **always be more urgent**.¶ If the important ethical work of urgency has been to identify that which must not wait, then the capture of the power and persuasiveness of urgency by large-scale future emergencies has consequences for the kinds of normative arguments we can raise on behalf of urgent bodies. How, then, might waiting compare as a normative description and critique in our own urgent time? Waiting can be categorized according to its purpose or outcome (see Corbridge, 2004; Gray, 2011), but it also modifies the place of the individual in society and her importance. As Ramdas (2012: 834) writes, ‘waiting … produces hierarchies which segregate people and places into those which matter and those which do not’. The segregation of waiting might produce effects that counteract suffering, however, and Jeffery (2008: 957) explains that though the ‘politics of waiting’ can be repressive, it can also engender creative political engagement. In his research with educated unemployed Jat youth who spend days and years waiting for desired employment, Jeffery finds that ‘the temporal suffering and sense of ambivalence experienced by young men can generate cultural and political experiments that, in turn, have marked social and spatial effects’ (Jeffery, 2010: 186). Though this is not the same as claiming normative neutrality for waiting, it does suggest that waiting is more ethically ambivalent and open than urgency.¶ In other contexts, however, our descriptions of waiting indicate a strong condemnation of its effects upon the subjects of study. Waiting can demobilize radical reform, **depoliticizing ‘the insurrectionary possibilities of the present by delaying the revolutionary imperative to a future moment that is forever drifting towards infinity’** (Springer, 2014: 407). Yonucu’s (2011) analysis of the self-destructive activities of disrespected working-class youth in Istanbul suggests that this sense of infinite waiting can lead not only to depoliticization, but also to a disbelief in the possibility of a future self of any value. Waiting, like urgency, can **undermine the possibility of self-care** two-fold, first by making people wait for essential needs, and again by reinforcing that waiting is ‘[s]omething to be ashamed of because it may be noted or taken as evidence of indolence or low status, seen as a symptom of rejection or a signal to exclude’ (Bauman, 2004: 109). This is why Auyero (2012) suggests that waiting creates an ideal state subject, providing ‘temporal processes in and through which political subordination is produced’ (Auyero, 2012: loc. 90; see also Secor, 2007). Furthermore, Auyero notes, it is not only political subordination, but the subjective effect of waiting that secures domination, as citizens and non-citizens find themselves ‘waiting hopefully and then frustratedly for others to make decisions, and in effect surrendering to the authority of others’ (Auyero, 2012: loc. 123).¶ Waiting can therefore function as a potentially important spatial technology of the elite and powerful, mobilized not only for the purpose of **governing individuals**, but also to **retain claims over moral urgency**. But there is **growing resistance** to the capture of claims of urgency by the elite, and it is important to note that even in cases where the material conditions of containment are currently impenetrable, arguments based on human value are at the forefront of **reclaiming urgency for the body**. In detention centers, clandestine prisons, state borders and refugee camps, geographers point to ongoing struggles against the ethical impossibility of bodily urgency and a rejection of states of waiting (see Conlon, 2011; Darling, 2009, 2011; Garmany, 2012; Mountz et al., 2013; Schuster, 2011). Ramakrishnan’s (2014) analysis of a Delhi resettlement colony and Shewly’s (2013) discussion of the enclave between India and Bangladesh describe people who refuse to give up their own status as legitimately urgent, even in the context of larger scale politics. Similarly, Tyler’s (2013) account of desperate female detainees stripping off their clothes to expose their humanness and suffering in the Yarl’s Wood Immigration Removal Centre in the UK suggests that demands for recognition are not just about politics, but also about the acknowledgement of humanness and the irrevocable possibility of being that which cannot wait. The continued existence of places like Yarl’s Wood and similar institutions in the USA nonetheless points to the challenge of exposing the urgent body as a moral priority when it is so easily hidden from view, and also reminds us that our research can help to explain the relationships between normative dimensions and the political and social conditions of struggle.¶ In closing, geographic depictions of waiting do seem to evocatively describe otherwise obscured suffering (e.g. Bennett, 2011), but it is striking how rarely these descriptions also use the language of urgency. Given the discussion above, what might be accomplished – and risked – by incorporating urgency more overtly and deliberately into our discussions of waiting, surplus and abandoned bodies? Urgency can clarify the implicit but understated ethical consequences and normativity associated with waiting, and encourage explicit discussion about harmful suffering. Waiting can be productive or unproductive for radical praxis, but urgency compels and requires response. Geographers could be instrumental in reclaiming the ethical work of urgency in ways that leave it open for critique, clarifying common spatial misunderstandings and representations. There is good reason to be thoughtful in this process, since moral outrage towards inhumanity can itself obscure differentiated experiences of being human, dividing up ‘those for whom we feel urgent unreasoned concern and those whose lives and deaths simply do not touch us, or do not appear as lives at all’ (Butler, 2009: 50). But when the urgent body is rendered as only waiting, both materially and discursively, it is just as easily cast as impulsive, disgusting, animalistic (see also McKittrick, 2006). Feminist theory insists that the urgent body, whose encounters of violence are ‘usually framed as **private, apolitical and mundane’** (Pain, 2014: 8), are as deeply **political, public, and exceptional** as other forms of violence (Phillips, 2008; Pratt, 2005). Insisting that **a suffering body, now, is that which cannot wait**, has the **ethical effect of drawing it into consideration alongside the political, public and exceptional scope of large-scale futures**. It may help us insist on the body, both as a single unit and a plurality, as a legitimate scale of normative priority and social care.¶ In this report, I have explored old and new reflections on the ethical work of urgency and waiting. Geographic research suggests a contemporary popular bias towards the urgency of large-scale futures, institutionalized in ways that further obscure and discredit the urgencies of the body. This bias also justifies the production of new waiting places in our material landscape, places like the detention center and the waiting room. In some cases, waiting is normatively neutral, even providing opportunities for alternative politics. In others, the technologies of waiting serve to manage potentially problematic bodies, leading to suspended suffering and even to extermination (e.g. Wright, 2013). One of my aims has been to suggest that **moral reasoning is important** both because it **exposes normative biases against subjugated people**, and because it potentially **provides routes toward struggle where claims to urgency seem to foreclose** the **possibilities** of alleviation of suffering. **Saving the world still should require a debate about whose world is being saved, when, and at what cost – and this requires a debate about what really cannot wait**. My next report will extend some of these concerns by reviewing how feelings of urgency, as well as hope, fear, and other emotions, have played a role in geography and ethical reasoning.¶ I conclude, however, by pulling together past and present. In 1972, Gilbert White asked why geographers were not engaging ‘the truly urgent questions’ (1972: 101) such as racial repression, decaying cities, economic inequality, and global environmental destruction. His question highlights just how much the discipline has changed, but it is also unnerving in its echoes of our contemporary problems. Since White’s writing, our moral reasoning has been stretched to consider the future body and the more-than-human, alongside the presently urgent body – topics and concerns that I have not taken up in this review but which will provide their own new possibilities for urgent concerns. My own hope presently is drawn from an acknowledgement that the **temporal characteristics of contemporary capitalism** can be interrupted in creative ways (Sharma, 2014), with the possibility of squaring the urgent body with our large-scale future concerns. **Temporal alternatives already exist in ongoing and emerging revolutions** and the disruption of claims of cycles and circular political processes (e.g. Lombard, 2013; Reyes, 2012). Though **calls for urgency will** certainly be used to obscure evasion of responsibility (e.g. Gilmore, 2008: 56, fn 6), they may also **serve as fertile ground for radical critique**, a truly fierce **urgency for now.**