North Atlantic
Treaty Organization

NATO

MUNUC 38

Model United Nations of the University of Chicago

Chair Letters

Dear Delegates,

My name is Jose Alvarez, and I would like to be one of the first to welcome you to MUNUC 38. I am extremely excited to be your chair alongside my co-chair, Olivia Russo, for this year's NATO regional body committee.

I am a second-year majoring in political science with a minor in human rights. On campus, I am involved with the Student Advocate's Office as the Lead Caseworker in the Conduct Division, as well as the Undergraduate Student Government as a member of the Community Service Fund. Some of my previous professional roles include working at a law firm in high school as an Administrative Assistant, being a Legislative Intern with the Office of State Representative Kam Buckner, and a Legislative Intern with the Office of U.S. Congressman Vicente Gonzalez. Originally from southern Texas, I thought I would love the snow and cold weather—turns out I was very wrong! Even though the weather is bipolar, I have loved Chicago and can't wait to continue exploring the city during the rest of my time here.

This year's NATO committee has different topics that will challenge you to think critically and work together. The privatization of space topic focuses on how NATO can allow private companies to continue their exploration while also keeping the organization's best interests as a priority. NATO aims to provide everyone access to space, but some countries have a majority of the private companies. Additionally, the earthquake relief in Pakistan topic focuses

on effectively helping another country after a natural disaster. No matter which topic is chosen, I look forward to seeing how NATO addresses these topics and finds solutions.

Olivia and I hope everyone has a fun weekend and enjoys the committee. One of my favorite parts of MUNUC is hearing all your ideas on approaching these topics. I look forward to meeting you all, and please feel free to reach out if you have any questions.

Sincerely,

Jose Alvarez

Jaalvarez@uchicago.edu

Dear Delegates,

Welcome to MUNUC and NATO!

My name is Olivia Russo, and I will be co-chairing NATO. My co-chair Jose and I are looking forward to running this committee for MUNUC 38 and hearing your insights as you tackle these critical topics. I am a second-year student at the College, double majoring in comparative human development and public policy studies. I am originally from Fort Lauderdale, Florida and I have been involved in Model UN since my freshman year of high school. Last year, I served as a moderator for the UNICEF committee. Outside of MUNUC, I am involved in campus organizations such as Lawtinos and the Korean Student Organization. This past summer, I interned at The George Washington University Law School Immigration Clinic. I also worked as a research intern for the UChicago Department of Comparative Literature, conducting a literature review focused on works of fiction that explore the intersections of language, identity, and the human condition.

Our two topics cover distinct areas, and the background guide that Jose and I have prepared is a great starting point for your research! It will help you think critically about how countries within NATO address these issues and give you the foundation to develop creative solutions.

It is essential to find improved solutions and approaches to these two topics as both are systemic in nature. They are not isolated incidents or one-time events; rather, they are continuous challenges with an international impact. As delegates, I urge you to move beyond conventional frameworks when researching and debating these issues. Too often, discussions and potential solutions surrounding these topics are formed on the basis of recycled solutions and predictable

policy responses. In a time where information and technology has become more expansive and accessible, delegates should consider perspectives that may have not been explored in previous discussions of these two topics. Creativity and originality will be crucial in finding solutions to address the complex nature of these global challenges.

Feel free to reach out if you have any questions, comments, or concerns! My email is oliviarusso@uchicago.edu. I look forward to the conference in February!

Sincerely,

Olivia Russo

History of the Committee

The North Atlantic Treaty Organization (NATO) was established on April 4, 1949 by the United States, Canada, and ten Western European countries. It was initially founded to provide a united front against the Soviet Union in the aftermath of World War II and to maintain political stability across Europe and North America.[1] Notably, NATO was the United States' first peacetime military alliance to extend beyond the Western Hemisphere.[2]

Over time, NATO has evolved significantly in both scope and membership. There have been ten rounds of enlargement since its creation, bringing a total of twenty additional members. Article 10 of the North Atlantic Treaty states that membership is open to any "European State in a position to further the principles of this Treaty and to contribute to the security of the North Atlantic area." New members must be unanimously approved by all current allies via the North Atlantic Council, NATO's main political decision making body. The organization's most recent members, Finland and Sweden, joined in 2023 and 2024, respectively.[3]

Originally focused on avoiding conflict with the Soviet Union during the Cold War, NATO has expanded its role to include crisis response, cooperative security, and peacekeeping efforts. Article 5 of the treaty, which outlines the principle of collective defense, states that an attack against one member is considered as an attack against all members. This principle has only been invoked once in history following the terrorist attacks on the United States on

[1] North Atlantic Treaty Organization, "A Short History of NATO," NATO, June 3, 2022, https://www.nato.int/cps/en/natohq/declassified_139339.htm.
[2] Office of the Historian, "North Atlantic Treaty Organization (NATO), 1949," Office of the Historian (Department of State, n.d.), https://history.state.gov/milestones/1945-1952/nato.
[3] North Atlantic Treaty Organization, "NATO Member Countries," NATO, March 11, 2024, https://www.nato.int/cps/en/natohq/topics_52044.htm.

September 11, 2001. NATO members have also responded with military support on other occasions, including the Syrian civil war and the Russo-Ukrainian War. To uphold the organization's defense commitments, NATO also keeps permanent forces on active duty.[4]

NATO and the United Nations (UN) have developed a cooperative relationship grounded in their shared goal of promoting global peace and security. Since the early 1990s, the two organizations have worked together on international peacekeeping and crisis management missions. NATO operates in accordance with the UN Charter and particularly with Article 51, which affirms the right of all member states to defend themselves individually or collectively.[5]

[4] North Atlantic Treaty Organization, "Collective Defence and Article 5," NATO, July 4, 2023, https://www.nato.int/cps/en/natohq/topics_110496.htm.
[5] North Atlantic Treaty Organization, "Relations with the United Nations," NATO, July 25, 2023, https://www.nato.int/cps/en/natohq/topics_50321.htm.

Topic A: Private Interests in Space

Statement of the Problem

Ethics of Commercial Space Travel

In recent years, many entrepreneurs have launched private companies that aim to **commercialize space**. For example, Jeff Bezos' Blue Origin has launched thirteen commercial space flights since July 20, 2021, with tickets costing hundreds of thousands of dollars.[6,7,8] After returning from one of these flights, *Star Trek* actor William Shatner said that "Everybody in the world needs to do this," but is such an achievement possible?[9] Is it ethical for companies to limit space travel with a high price tag? Does only allowing the rich into space perpetuate inequality?

Many more companies, such as **SpaceX** and **Virgin Galactic**, have also joined the fray, elevating these questions of ethics and equality. Notably, some of these companies have created public sweepstakes to give away a seat on a flight.[10] Nevertheless, the central concerns regarding the ethics of commercial space travel remain.

The **privatization of space** is mainly separated into two different categories: private space missions (for hypothetical colonization, exploration, or resource extraction) and

[6] Blue Origin, "Blue Origin Safely Launches Four Commercial Astronauts to Space and Back," Blue Origin, July 20, 2021, https://www.blueorigin.com/news/first-human-flight-updates.
[7] Blue Origin, "Blue Origin's New Shepard Completes 33rd Mission to Space," Blue Origin, June 29, 2025, https://www.blueorigin.com/news/new-shepard-ns-33-mission.
[8] Blue Origin, "Book Your Flight," Blue Origin, n.d., https://www.blueorigin.com/new-shepard/reserve-a-seat.
[9] Emily Shapiro, "William Shatner Tells Jeff Bezos: 'Everybody in the World Needs to Do This,'" ABC News, October 13, 2021, https://abcnews.go.com/US/william-shatner-tells-jeff-bezos-world/story?id=80559598.
[10] Virgin Galactic, "Omaze and Virgin Galactic Announce Winner of Once-In-a-Lifetime Trip to Space," Virgin Galactic, November 23, 2021, https://www.virgingalactic.com/news/omaze-and-virgin-galactic-announce-winner-of-once-in-a-lifetime-trip-to.

commercial space flight. The inequality between different countries' space programs stems from high costs and complex technologies.

A render of a Blue Origin rocket launch.[11]

Environmental Impacts

Rocket launches emit a significant amount of pollution and cause environmental damage. For instance, in addition to commercial space travel, SpaceX launches satellites and other missions that are sometimes unsuccessful. SpaceX Starship flight test 7 was launched on January 16, 2025, in Texas.[12] Unfortunately, part of the rocket caught on fire and exploded, causing fragments to land in parts of the Caribbean. During its fall back to Earth, the rocket released 45.5

[11] Kevin Gill, Blue Origins New Glenn Launch, April 5, 2016, Online image, Wikimedia Commons, April 5, 2016, https://commons.wikimedia.org/wiki/File:Blue_Origins_New_Glenn_Launch_%2829350547990%29.png.
[12] SpaceX, "Launches," SpaceX, n.d., https://www.spacex.com/launches/mission/?missionId=starship-flight-7.

metric tons of metal oxides and 40 metric tons of nitrogen oxide.[13] Even though the mission was extremely well planned, it still led to unintended and adverse environmental consequences.

Even when missions do reach space, environmental issues persist. Rocket launches release more pollutants, including carbon dioxide and soot from burning fuel, into the upper atmosphere. Although the total physical amount of pollution from spacecraft is low compared to other industries, the impact is significantly higher. Particles linger in the upper atmosphere much longer than in lower layers, so a rocket has up to 500 times more effect on global warming than an airplane emitting the same amount of pollution. Starlink (a SpaceX subsidiary) and other satellite projects have tripled human emissions into the upper atmosphere, bringing them to a historically unprecedented level.[14]

By the end of this decade, around 100,000 spacecraft are expected to circle Earth in outer space, according to aerospace researchers. This number raises concerns about potential environmental damage: if all these spacecraft are launched, more than 3,300 tons of space junk will be burning up in the atmosphere every year. As a result, the concentrations of aluminum oxides in the mesosphere and stratosphere could increase by 650%.[15] Although many launches may be successful, others will become space junk and cause severe damage to the environment.

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[13] Tereza Pultarova, "How Much Did SpaceX's Starship Flight 7 Explosion Pollute the Atmosphere?," Space.com, February 2, 2025, https://www.space.com/space-exploration/how-much-did-spacexs-starship-flight-7-explosion-pollute-the-atmosphere.

[14] Gary Fuller, "Scientists Call for Action to Address Air Pollution from Space Launches," The Guardian, August 22, 2025, https://www.theguardian.com/environment/2025/aug/22/scientists-call-for-action-air-pollution-space-launches.

[15] Tereza Pultarova, "Pollution from Rocket Launches and Burning Satellites Could Cause the next Environmental Emergency," Space.com, October 15, 2024, https://www.space.com/rocket-launches-satellite-reentries-air-pollution-concerns.

Economic Disparity

Most private space companies are based in developed countries. For example, three of the largest private space companies—SpaceX, Blue Origin, and Virgin Galactic—operate from the United States. In contrast, many developing countries have no space program or satellites at all. Instead, they must rely on other countries that have the necessary infrastructure. Even though international relationships can be mutually beneficial, many developing countries will still face challenges. Developing their own satellites would be difficult due to increasing space debris as more satellites are launched.[16]

One of the biggest disparities lies in the funding that each country can allocate towards space exploration. SpaceX's Falcon 9 costs around $2,700 per kilogram to launch, and India's **Polar Satellite Launch Vehicle (PSLV)** costs $1,500 per kilogram to launch. Despite the presence of cheaper options, these prices are still hard for nations with limited resources and budgets. Even a single launch can exceed the education or health budget of a developing country. For instance, a mid-size satellite launch costs more than the entire science and technology budget for Ghana in 2023, exemplifying the high economic barrier to entry.[17]

[16] Theodora Ogden, "Wealthy Nations Carve up Space and Its Riches, Leave Others Behind," Business Standard, May 12, 2022, https://www.business-standard.com/article/international/wealthy-nations-carve-up-space-and-its-riches-leaving-others-behind-122051200239_1.html.
[17] Climate Cosmos Team, "The Cost Barriers Keeping Many Nations from Space Innovation," Climate Cosmos, July 31, 2025, https://climatecosmos.com/space/the-cost-barriers-keeping-many-nations-from-space-innovation.

Virgin Galactic in flight.[18]

Private Missions

Some private interests are exploring the possibility of extraterrestrial resource extraction, which would facilitate space exploration and scientific research. For instance, space telescopes, missions to the outer solar system and beyond, and research stations on other planets could be constructed with **in situ resource utilization (ISRU)**.[19] Methods might include the extraction of water from icy areas on the Moon for fuel synthesis and life support.[20] In addition, asteroid mining shows promise, as **rare earth elements** are plentiful on some asteroids; the asteroid

[18] Jeff Foust, White Knight Two and SpaceShipTwo from Directly Below, October 22, 2010, Online image, Wikimedia Commons, October 22, 2010, https://commons.wikimedia.org/wiki/File:White_Knight_Two_and_SpaceShipTwo_from_directly_below.jpg.
[19] Ian A. Crawford, Martin Elvis, and James Carpenter, "Using Extraterrestrial Resources for Science," Astronomy & Geophysics 57, no. 4 (August 1, 2016): 4.32–36, https://doi.org/10.1093/astrogeo/atw150.
[20] Jennifer A. Grier and Andrew S. Rivkin, "Future Exploration," in Airless Bodies of the Inner Solar System (Elsevier, 2018), 255–73, https://www.sciencedirect.com/science/article/pii/B9780128092798000123.

Psyche could contain millions of years' worth of iron and nickel production. Although many private companies have experienced funding challenges, Offworld, iSpace, and others are investigating the possibility of asteroid mining. However, high costs and the harsh non-atmospheric environments in space may pose issues.[21]

In other fields, the **private sector** is already active in space. Thousands of privately owned satellites orbit the Earth, with more than 1,500 attributed to SpaceX's Starlink program alone. Many of these satellites serve communication purposes.[22] With the impending conclusion of the **International Space Station (ISS)** mission, companies such as Vast, Blue Origin, Axiom Space, and Lockheed Martin have proposed their own space station designs for research and tourism.[23]

Space Regulations

International regulations have been imposed to ensure that every country is able to explore space. However, there are many issues with these regulations, such as a lack of frequent updates and a failure to address funding issues. The gray areas regarding private companies' operations in space underscore the need for a central regulation framework.

One of the oldest documents implementing international space law is the 1967 Outer Space Treaty. This agreement allows its 117 signatories to explore space, but not to claim sovereignty over any area of space. Regarding space companies, the treaty requires nations to

[21] Pierre Henriquet, "Mining in Space: Can We Do It?," Polytechnique insights, May 17, 2022, https://www.polytechnique-insights.com/en/braincamps/space/extraterrestrial-mining/mining-in-space-can-we-do-it.
[22] Primož Rome, "Every Satellite Orbiting Earth and Who Owns Them," DEWESoft, February 9, 2023, https://dewesoft.com/blog/every-satellite-orbiting-earth-and-who-owns-them.
[23] Doug Adler, "We're Entering the Era of Private Space Stations," Astronomy, November 6, 2024, https://www.astronomy.com/space-exploration/were-entering-the-era-of-private-space-stations/.

regulate and oversee private operations.[24] However, even though there is a governing set of regulations, there are still many gaps concerning space privatization.

One major flaw in the Outer Space Treaty is its growing obsolescence, as it is seldom updated to keep up with modern times. As the private space sector expands, national governments must regulate these companies in response. However, many countries lack a comprehensive regulatory regime that addresses every aspect of space privatization.[25] Since the commercial space industry and privatization of space will continue to grow, experts have called for the establishment of new regulations. The new system should be more robust and aim to address all challenges or obstacles that may arise.

[24] Brianna Rauenzahn et al., "Regulating Commercial Space Activity," The Regulatory Review, June 6, 2020, https://www.theregreview.org/2020/06/06/saturday-seminar-regulating-commercial-space-activity/.
[25] Ibid.

History of the Problem

Government Space Agencies

Many North Atlantic Treaty Organization (NATO) countries have established space agencies to explore the universe. For example, in 1961, France founded the Centre National D'études Spatiales, a leading European space program.[26] However, not all countries around the world have their own independent space programs, which leads them to rely on NATO.

Not all space programs are created just for exploration—some agencies also invest in commercializing space. For instance, the **United Kingdom Space Agency (UKSA)**, which was established in 2010, has invested money in many different projects.[27] At the beginning of 2024, the UKSA provided the equivalent of $650,000 to fund Cosmic Capital, the Seraphim Space Accelerator, and various other space-related endeavors.[28]

[26] Centre national d'études spatiales, "CNES at a Glance," CNES, n.d., https://cnes.fr/en/at-glance.
[27] United Kingdom Space Agency, "About Us," GOV.UK, n.d., https://www.gov.uk/government/organisations/uk-space-agency/about.
[28] United Kingdom Space Agency, "UK Space Agency Provides £500,000 through Accelerating Investment Programme," GOV.UK, February 23, 2024, https://space.blog.gov.uk/2024/02/23/uk-space-agency-provides-500000-through-accelerating-investment-programme/.

Launch of a SpaceX rocket.[29]

Privatizing Space

In the twenty-first century, many billionaires have funded private space companies for either travel or exploration. Blue Origin, founded by billionaire Jeff Bezos in 2000, has primarily focused on sending private citizens to space on board the New Shepard, their reusable spacecraft.[30] In other words, individuals may purchase a ticket for a quick flight past the **Kármán line**. Blue Origin, Virgin Galactic, and other private companies aim to make space travel more accessible.

In addition to space travel, SpaceX, owned and operated by Elon Musk since 2002, also focuses on potential human habitation of space.[31] The company's current operations involve conducting research during its space missions, which include both astronautical and terrestrial

[29] Daniel Oberhaus, First Launch of SpaceX Falcon Heavy, February 6, 2018, Online image, Wikimedia Commons, February 6, 2018, https://commons.wikimedia.org/wiki/File:First_Launch_of_SpaceX_Falcon_Heavy.jpg.
[30] The Editors of Encyclopaedia Britannica, "Jeff Bezos," in Encyclopaedia Britannica, 2025, https://www.britannica.com/money/Jeff-Bezos#ref1072225.
[31] Alison Eldridge, "SpaceX," in Encyclopaedia Britannica, 2025, https://www.britannica.com/money/SpaceX.

activities. SpaceX is known for its many space tests, and one of its most significant achievements is the reusable rocket booster, which saves millions of dollars in construction.[32]

The United States Congress has passed legislation addressing the commercialization and privatization of space. An early law was the Commercial Space Launch Act of 1984, which recognized private capabilities for satellites and launch devices, with regulation delegated to the Department of Transportation.[33] In 2004, the Act was amended to provide for the issuance of experimental permits and to allow the holder of a license to launch and re-enter crews.[34] Most recently, the Commercial Space Launch Competitiveness Act was enacted in 2015 to support the growth of the American commercial space industry.[35]

Government Partnerships with Private Space Companies

While many private space ventures have seen success, others often partner with government space agencies. In particular, SpaceX has partnered with the **National Aeronautics and Space Administration (NASA)** to send astronauts to the International Space Station (ISS). Recently, SpaceX launched its fourth joint mission with NASA to bring astronauts to the ISS.[36] Although both SpaceX and NASA are based in the United States, astronauts from all around the world participated in this recent mission.

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[32] SpaceX, "Falcon 9," SpaceX, n.d., https://www.spacex.com/vehicles/falcon-9/.
[33] United States House of Representatives, "CHAPTER 509—COMMERCIAL SPACE LAUNCH ACTIVITIES," United States Code § (2025), https://uscode.house.gov/view.xhtml?path=/prelim@title51/subtitle5/chapter509&edition=prelim.
[34] Dana Rohrabacher, "H.R.5382 - Commercial Space Launch Amendments Act of 2004," Congress.gov § (2004), https://www.congress.gov/bill/108th-congress/house-bill/5382/summary/00.
[35] Kevin McCarthy, "H.R.2262 - U.S. Commercial Space Launch Competitiveness Act," Congress.gov § (2015), https://www.congress.gov/bill/114th-congress/house-bill/2262.
[36] Tiernan P. Doyle, "NASA to Welcome Fourth Private Astronaut Mission to Space Station," NASA, June 25, 2025, https://www.nasa.gov/news-release/nasa-to-welcome-fourth-private-astronaut-mission-to-space-station/.

Such strategic partnerships are intended to build public trust in these private companies as they expand and to grant governments a say in their decisions. These partnerships are increasingly significant as many countries have begun to rely on private companies to bring their astronauts to space. For example, in 2025, the United States Department of Defense awarded SpaceX a $5.9 billion contract to launch 28 missions.[37] Cooperation between private companies and governments is important since it helps keep the public informed of space-related activities.

However, not all government partnerships with private companies have succeeded. On January 28, 1986, Space Shuttle *Challenger* exploded shortly after liftoff, killing all seven crew members. This disaster was caused by a failure of an O-ring seal, which was manufactured by Morton Thiokol, a private aerospace company.[38] In 2003, Space Shuttle *Columbia*—also built in part by contracted companies—disintegrated upon re-entry, killing seven more astronauts and resulting in the eventual retirement of the Space Shuttle program.[39]

[37] Joey Roulette and Marisa Taylor, "SpaceX, ULA, Blue Origin Clinch $13.5 Billion-Dollar Pentagon Launch Contracts," Reuters, April 4, 2025, https://www.reuters.com/business/aerospace-defense/spacex-ula-expected-clinch-multibillion-dollar-contract-key-pentagon-launch-2025-04-04/.
[38] Presidential Commission on the Space Shuttle Challenger Accident, "Rogers Commission Report," NASA, June 9, 1986, https://www.nasa.gov/history/rogersrep/v1ch4.htm.
[39] National Aeronautics and Space Administration, "Remembering the Columbia STS-107 Mission," NASA, n.d., https://www.nasa.gov/remembering-columbia-sts-107/.

A NASA Space Shuttle launch.[40]

Public Views

Progress toward human exploration, understanding, and habitation of space is widely considered an important goal, but many disagree on whether to involve private interests. People in favor of such involvement argue that the private sector will provide more human capital, more research space, and ultimately more progress. On the other hand, those who are opposed raise concerns about the potential loss of credibility in a country's space program and skipping important steps before launching space missions.

[40] Pixabay, Space Rocket Launching, April 13, 2016, Online image, Pexels, April 13, 2016, https://www.pexels.com/photo/space-rocket-launching-73871/.

According to the Pew Research Center, most Americans approve of private companies' work to advance scientific research.[41] Specifically, people are generally satisfied with the safety of spacecraft and agree with increasing the accessibility of space travel. As a result, there is increasing public support for private space companies to partner with government organizations.

Even though many people approve of external involvement, others remain opposed. In particular, some worry that private companies may negatively influence established space organizations. For example, satellite and launch analysts are concerned about how SpaceX "could jeopardize NASA's long-standing culture of safety" by minimizing costs rather than prioritizing quality. These misgivings underpin negative perceptions of private space companies and have caused backlash from some aerospace engineers.[42]

[41] Brian Kennedy and Alec Tyson, "Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies," Pew Research Center, July 20, 2023, https://www.pewresearch.org/science/2023/07/20/americans-views-of-space-u-s-role-nasa-priorities-and-impact-of-private-companies/.
[42] Adam Mann, "SpaceX Now Dominates Rocket Flight, Bringing Big Benefits—and Risks—to NASA," Science, May 20, 2020, https://www.science.org/content/article/spacex-now-dominates-rocket-flight-bringing-big-benefits-and-risks-nasa.

Past Actions

In response to the rise of commercial space travel and privatization, governments and **international bodies** have taken various actions to regulate and monitor the expanding industry. The **United Nations Office for Outer Space Affairs (UNOOSA)** was established in 1958 to promote international cooperation and peaceful space exploration. UNOOSA facilitates yearly gatherings for the UN Committee on the Peaceful Uses of Outer Space (COPUOS), along with the latter's two branches—the Scientific and Technical Subcommittee and the Legal Subcommittee. UNOOSA oversees the implementation of international space law, especially the foundational 1967 Outer Space Treaty.[43]

[43] United Nations Office for Outer Space Affairs, "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," United Nations Office for Outer Space Affairs § (1966), https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html.

Historic signing of the 1967 Outer Space Treaty, a foundational agreement in space governance, in Washington, D.C.[44]

While this treaty is widely viewed as the cornerstone of space law, affirming that space is the "providence of all mankind," it did not anticipate the extent of privatization. However, Article II does prohibit national sovereignty over outer space or celestial bodies. Articles VI and VII also outline that all non-governmental space activities must be approved and overseen by the nation in which they are launched.[45]

The Space2030 Agenda was drafted in 2018 and adopted by the United Nations in 2021 with the intent of promoting sustainable development in accordance with the United Nations Sustainable Development Goals (SDGs). The agenda aims to foster an inclusive environment

[44] UN Photo, Signing of Treaty on Outer Space, January 1967, Online image, Flickr, January 1967, https://www.flickr.com/photos/itupictures/16661050412.
[45] United Nations Office for Outer Space Affairs, "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," United Nations Office for Outer Space Affairs § (1966), https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html.

and promote global prosperity in space exploration through ways such as bridging the space divide amongst nations and increasing global partnerships. The Strategic Vision section of the agenda emphasizes the importance of cooperation among various groups, such as governments, the private sector, and non-governmental entities. Thus, the agenda highlights that a stable yet adaptable relationship between these groups is crucial for the continued success and efficiency of space exploration.[46]

Additionally, the Space2030 Agenda launched the Access to Space for All initiative, which seeks to expand global participation in space activities. Its goal is to support achievement of the SDGs through "triangular cooperation" between three key parties: spacefaring countries, the United Nations, and non-spacefaring countries (or those with developing space programs).[47] This cooperation would involve both the public and private sectors.

[46] United Nations Office for Outer Space Affairs, "The 'Space2030' Agenda," UNOOSA, 2024, https://www.unoosa.org/res/oosadoc/data/documents/2024/stspace/stspace88_0_html/st_space-088E.pdf.
[47] Ibid.

NASA and SpaceX collaborated to launch a rocket to the International Space Station.[48]

Through these initiatives and goals, the United Nations aims to bridge the gap between public institutions and the private sector. Since many private entities operate independently from governments, they often have greater autonomy. However, these initiatives foster collaboration between governments, international organizations, and private companies, encouraging the sharing of knowledge. This approach helps expand collective capability in space-related endeavors, rather than allowing them to become fragmented.[49]

[48] SpaceX, Crew-1 Mated with Falcon 9, November 9, 2020, Online image, Wikimedia Commons, November 9, 2020, https://commons.wikimedia.org/wiki/File:Crew-1_mated_with_Falcon_9.jpg.
[49] National Aeronautics and Space Administration, "NASA's SpaceX Crew-5 Launches to International Space Station," NASA, October 5, 2022, https://www.nasa.gov/news-release/nasas-spacex-crew-5-launches-to-international-space-station/.

Some nations have enacted and implemented legislation to govern private space industries. For example, the United States passed the Commercial Space Launch Competitiveness Act in 2015, allowing U.S. citizens to own resources they obtain from asteroids and other celestial bodies without claiming sovereignty over them.[50] The United Arab Emirates and Luxembourg have developed similar legislation to attract commercial investment in space mining and exploration.[51]

Additionally, some public and private entities have formalized partnerships. NASA's Commercial Crew Program enables private companies like SpaceX and Boeing to launch astronauts to the International Space Station (ISS), demonstrating a shift in how governments utilize the private sector's capacity for scientific missions.[52]

Despite these advancements, the enforcement mechanisms for ethical practices, environmental sustainability, and fair international participation remain weak. No binding global environmental standards exist for rocket emissions or space debris mitigation, and the Global South has limited influence in shaping space policy frameworks.[53]

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[50] Kevin McCarthy, "H.R.2262 - U.S. Commercial Space Launch Competitiveness Act," Congress.gov § (2015), https://www.congress.gov/bill/114th-congress/house-bill/2262.
[51] United Arab Emirates Space Agency, "UAE Space Agency Organises UAE / Luxembourg Space Investment Forum," UAE Space Agency, January 30, 2020, https://space.gov.ae/en/media-center/news/30/1/2020/uae-space-agency-organises-uae-luxembourg-space-investment-forum-e42d9845.
[52] National Aeronautics and Space Administration, "Commercial Crew Program Overview," NASA, n.d., https://www.nasa.gov/commercialcrew.
[53] Sustainability Directory, "Space Debris Mitigation Policy," Prism Sustainability Directory, September 5, 2025, https://prism.sustainability-directory.com/term/space-debris-mitigation-policy/.

Possible Solutions

While nations and international organizations have broadly discussed space development, there has been a lack of focused attention on the issue of space privatization. The international response has largely consisted of setting general goals rather than proposing concrete, actionable solutions.

The topic of space is inherently complex, involving a wide range of legal, technological, and regulatory policy considerations. For example, UNOOSA collaborates with both legal and technological experts, reflecting the multifaceted nature of space-related issues. Therefore, addressing the challenges of space privatization requires diverse and multidisciplinary approaches. Effective solutions may stem from any combination of legal frameworks, technological innovation, and regulatory policy, as these three areas are highly interconnected. To address the challenges and inequalities of space privatization, the international community could explore various solutions.

Establish an International and Unambiguous Agreement on Space Commercialization

Nations could draft a new treaty or amend the Outer Space Treaty to specifically address the management of private sector activities in space. This document should clearly define accountability, equitable access, and responsibilities for environmental protection. To deter further legislative ambiguity, the treaty or amendment could include specifics such as mandatory emissions reporting and accident transparency.

Create an International Space Sustainability Agency

An organization that regulates and monitors environmental sustainability in space could be established under the UN or a separate international organization. This body could monitor launches, track space debris, and provide regulatory oversight on behalf of all nations involved. Such an agency could also serve as a mediator between countries and private entities in case of a dispute or environmental harm.

Promote Open Data and Technology Sharing

To empower developing countries, international cooperation could encourage open access to space data and partnerships for technological capacity-building. This could entail a centralized database for UN member nations and promoting greater access to shared satellite data. This would foster greater inclusivity of all nations. Various solutions could be implemented to achieve this end; while they may not completely eliminate the risk associated with the privatization of space, they can build a more inclusive and sustainable framework for future space exploration.

Introduce a Global Licensing Framework for Private Space Interests

A unified international licensing system under the supervision of the United Nations could ensure that private companies meet minimum safety, ethical, and environmental standards before engaging in space activities. This framework could be modeled after the International Civil Aviation Organization (ICAO). The system would promote coordination and transparency while preventing unregulated launches.

Implement a Space Tax

As private space activity increases, so does the burden on shared resources such as infrastructure and the terrestrial environment. To offset this imbalance, the international community could implement a global space tax requiring private entities to financially contribute to the maintenance and regulation of space-related infrastructure. This tax could be scaled on the basis of several factors, including the number of launches, mission durations, or expected environmental impact. The funds collected could be managed by a centralized international body, ensuring transparency and a fair distribution.

A mandatory tax on commercial space activities could fund a range of initiatives, including the promotion of equitable access to space and long-term sustainability initiatives. For example, it could support the development of new technologies, such as debris mitigation and environmental monitoring tools. A portion of the funds could also be allocated to help developing countries build space programs or gain greater access to information. By linking private profits to shared obligations, this system would incentivize more responsible behavior.

Bloc Positions

Technologically Advanced Countries Supporting Space Commercialization

Numerous countries are on the forefront of space commercialization or have taken proactive steps to attract private investment in the space industry. These nations tend to have strong national space agencies, private organizations, and national laws that support involvement from the private sector.

For example, the United States is a leader in private spaceflight initiatives through companies such as SpaceX, Blue Origin, and Boeing. These private organizations enjoy regulatory support from various pieces of legislation.[54] The United Kingdom has invested heavily in spaceport infrastructure, and the UK Space Agency has partnered with private organizations.[55] Additionally, Luxembourg and the United Arab Emirates (though not a NATO member) have emerged as key players in space mining and commercial space exploration through the creation of investment-friendly legislation.[56]

Therefore, various nations are likely to defend commercial involvement in space, with an emphasis on innovation and economic development. However, countries may disagree on the extent to which global regulation should be introduced and enforced, especially in such

[54] Rachel Lindbergh, "Commercial Space Launch and Reentry Regulations: Overview and Select Issues," Congress.gov, June 23, 2025, https://www.congress.gov/crs-product/R48582.
[55] United Kingdom Space Agency, "About Us," GOV.UK, n.d., https://www.gov.uk/government/organisations/uk-space-agency/about.
[56] United Arab Emirates Space Agency, "UAE Space Agency Organises UAE / Luxembourg Space Investment Forum," UAE Space Agency, January 30, 2020, https://space.gov.ae/en/media-center/news/30/1/2020/uae-space-agency-organises-uae-luxembourg-space-investment-forum-e42d9845.

frameworks that limit private sector autonomy. Nations that are focused on increasing private investment will avoid obstructing growth and competitiveness.

Countries Focused on Environmental and Ethical Concerns

Many countries, while they may also support commercial space activity, stress the need for robust international regulations to protect both the environment and international public interest. Many of these nations advocate for sustainability and are signatories to international climate agreements.

For example, France and Germany are members of the European Space Agency (ESA) and often emphasize multilateral governance and legislation pertaining to space affairs.[57] Canada also has a record of supporting ethics in space exploration and focusing on environmental policy.[58] These countries are concerned about environmental risks such as space debris, rocket emissions, and unregulated expansion into space. They see a need for the establishment of international standards, required transparency and reporting from private organizations, and collaborative governance over the privatization of space.

[57] Jenni Tapio and Alexander Soucek, "The European Space Agency's Contribution to National Space Law," in International Actors and the Formation of Laws, ed. Katja Karjalainen, Iina Tornberg, and Aleksi Pursiainen (Springer, 2022), 113–34, https://doi.org/10.1007/978-3-030-98351-2_6.
[58] Canadian Space Agency, "Canada and Space Sustainability," Government of Canada, September 6, 2024, https://www.asc-csa.gc.ca/eng/sustainability/canada-and-space-sustainability.asp.

Glossary

Global North and Global South - Terms used to distinguish countries based on socio-economic and political divides; the Global North typically refers to wealthier and more industrialized nations, while the Global South refers to developing or less economically advanced countries. The terms evolved because developed countries generally lie north of developing countries; however, there are notable exceptions, such as Australia.[59]

Habitable Planets - Planets other than Earth that possess conditions potentially suitable for sustainable life. Such conditions may include, but are not limited to, liquid water, an atmosphere, and geological activity.[60]

International Bodies - Organizations composed of member states that collaborate on international issues.

International Space Station (ISS) - A large habitable satellite in low Earth orbit that contains a multinational research laboratory. The ISS is jointly operated by NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada). The ISS serves as a hub for scientific research and international cooperation in space.[61]

In Situ Resource Utilization (ISRU) - in the context of extraterrestrial missions, ISRU is the use of locally extracted materials (rather than those imported from Earth).[62]

[59] Miles Kenny, "Global North and Global South," in Encyclopaedia Britannica, October 29, 2024, https://www.britannica.com/topic/Global-North-and-Global-South.
[60] National Aeronautics and Space Administration, "Exoplanets," NASA, n.d., https://science.nasa.gov/exoplanets/.
[61] National Aeronautics and Space Administration, "International Space Station," NASA, May 23, 2023, https://www.nasa.gov/reference/international-space-station/.
[62] Jennifer A. Grier and Andrew S. Rivkin, "Future Exploration," in Airless Bodies of the Inner Solar System (Elsevier, 2018), 255–73, https://www.sciencedirect.com/science/article/pii/B9780128092798000123.

Kármán Line - the generally accepted boundary between Earth and outer space; it is defined at 100 kilometers (about 62 miles) above Earth's surface. Traditional aircraft have difficulty traveling above the line due to the thinner atmosphere.[63]

NASA (National Aeronautics and Space Administration) - The United States government agency responsible for the nation's civilian space program and for aeronautics and aerospace research.[64]

PSLV (Polar Satellite Launch Vehicle) - An Indian launch vehicle developed by the Indian Space Research Organization (ISRO) mainly used to deploy satellites into polar and sun-synchronous orbits that allow better imaging of Earth's surface.[65]

Private Sector - The collection of all organizations and businesses not owned or operated by national governments.[66]

Rare Earth Elements - materials very difficult to isolate from naturally occurring compounds but critical for many industries, such as national security and energy. Examples include neodymium and lanthanum.[67]

Space Commercialization - The use of space for commercial purposes, including tourism and research that is funded and controlled by private companies.

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[63] Eric Betz, "The Kármán Line: Where Does Space Begin?," Astronomy, November 27, 2023, https://www.astronomy.com/space-exploration/the-karman-line-where-does-space-begin/.
[64] National Aeronautics and Space Administration, "About NASA," NASA, n.d., https://www.nasa.gov/about/.
[65] Indian Space Research Organisation, "PSLV," Department of Space (Government of India, n.d.), https://www.isro.gov.in/PSLV_CON.html.
[66] The Investopedia Team, "Understanding the Private Sector: Definitions and Examples," ed. Robert C. Kelly, Investopedia, April 26, 2025, https://www.investopedia.com/terms/p/private-sector.asp.
[67] National Energy Technology Laboratory, "Rare Earth Elements – a Subset of Critical Minerals," NETL, n.d., https://www.netl.doe.gov/resource-sustainability/critical-minerals-and-materials/rare-earth-elements.

Space Privatization - The transfer of space activities which are traditionally managed by governments to administration by private entities. This allows companies to own, operate, and profit from space-based ventures.

SpaceX - Officially known as Space Exploration Technologies Corp., SpaceX is an American aerospace manufacturer and space transportation company founded by Elon Musk.[68]

United Kingdom Space Agency (UKSA) - The United Kingdom's executive agency responsible for the country's civil space policy, exploration, satellite programs, and international collaboration.[69]

United Nations Office for Outer Space Affairs (UNOOSA) - A UN agency that promotes international cooperation in the peaceful uses of outer space and the development of space law.[70]

Virgin Galactic - An American private spaceflight company focused on suborbital space tourism. It aims to make space accessible to private individuals.[71]

[68] Alison Eldridge, "SpaceX," in Encyclopaedia Britannica, 2025, https://www.britannica.com/money/SpaceX.
[69] United Kingdom Space Agency, "About Us," GOV.UK, n.d., https://www.gov.uk/government/organisations/uk-space-agency/about.
[70] United Nations Office for Outer Space Affairs, "About Us," UNOOSA, n.d., https://www.unoosa.org/oosa/en/aboutus/index.html.
[71] Josh Dinner, "Who Is Virgin Galactic and What Do They Do?," Space.com, May 30, 2023, https://www.space.com/18993-virgin-galactic.html.

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Topic B: Earthquake Relief In Pakistan, 2005

Statement of the Problem

Impact of the Earthquake

The Kashmir earthquake of 2005 was one of the most devastating natural disasters to ever strike the northern Indian subcontinent. This catastrophe occurred on October 8 at 8:50 A.M. local time. Kashmir was heavily affected by fatalities and structural damage: around 79,000 people died as a result of the earthquake, and more than 32,000 buildings collapsed.[72]

The earthquake had a **magnitude** of 7.6 on the **Richter scale** and struck an area on the India-Pakistan border near the Himalayan mountains. Approximately 138,000 people were injured, and 3.5 million became homeless. 19,000 children passed away, mostly due to collapsed school buildings. Major hospitals were destroyed or severely damaged, rendering them unable to help injured individuals.[73]

[72] The Editors of Encyclopedia Britannica, "Kashmir Earthquake of 2005," in *Encyclopædia Britannica*, accessed July 2025, https://www.britannica.com/event/Kashmir-earthquake-of-2005.
[73] Saif Hussain et al., "The Kashmir Earthquake of October 8, 2005: Impacts in Pakistan," February 2006, https://www.eeri.org/lfe/pdf/kashmir_eeri_2nd_report.pdf.

Aftermath of the 2005 Pakistan Earthquake.[74]

Initial Response

The Pakistani government attempted to provide assistance on the ground in the earthquake's immediate aftermath. On the same day the earthquake hit, the government declared a national emergency. However, they encountered issues when trying to help their citizens, including geographical problems. Many farming families lived in scattered villages and were reluctant to leave their land. In addition, the Pakistan Army was one of the main organizations that responded and assisted where possible, but military constraints and repositioning requirements caused major delays.[75]

[74] Timothy Smith and United States Navy, *The City of Muzafarabad, Pakistan Lays in Ruins after an Earthquake That Hit the Region*, October 8, 2005, Online image, *GetArchive*, October 8, 2005, https://timelessmoon.getarchive.net/media/the-city-of-muzafarabad-pakistan-lays-in-ruins-after-an-earthquake-that-hit-c08ddb.

[75] Steve Coll, "Fault Lines," The New Yorker, November 14, 2005, https://www.newyorker.com/magazine/2005/11/21/fault-lines.

The government also had no established disaster management organization, which would have handled relief operations on a large scale. There was a rough framework for **disaster response**, but the existing infrastructure was either in poor condition or totally destroyed.[76] On October 10, 2005, the **Federal Relief Commission (FRC)** was established to bear the responsibility of initial emergency response and resource allocation.[77]

Aid Delivery

Many more challenges arose as aid was distributed. In particular, helicopter transportation was a major bottleneck in aid supply. Helicopters were one of the only ways to reach remote areas, but inclement weather caused a delay in delivering supplies. For instance, the Pakistani government announced on October 16 that one of its helicopters had crashed due to weather conditions as it transported aid workers.[78]

The initial aid delivery faced serious obstacles. Relief efforts were focused on the largely inaccessible landscape, so the delays frustrated many people in affected areas. Residents expressed concerns and even shared how some individuals had passed away due to the delays, causing outrage and criticism of the Pakistani government. Many people in remote villages had to wait for evacuations as well.[79]

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[76] Farooq Ahmad Khan, "The Response to the Earthquake in Pakistan," *Humanitarian Exchange*, July 6, 2006, Humanitarian Practice Network, https://odihpn.org/en/publication/the-response-to-the-earthquake-in-pakistan/.
[77] Ikram Shah et al., "Inter-Agency Collaboration and Disaster Management: A Case Study of the 2005 Earthquake Disaster in Pakistan," *Jàmbá: Journal of Disaster Risk Studies* 14, no. 1 (January 27, 2022), https://doi.org/10.4102/jamba.v14i1.1088.
[78] Khabir Ahmad, "Saving Lives in the Aftermath of Pakistan's Earthquake," *The Lancet* 366, no. 9495 (October 22, 2005): 1423–24, https://doi.org/10.1016/s0140-6736(05)67583-6.
[79] Ibid.

Pakistan police unload relief supplies from a helicopter.[80]

International Response and NATO Aid

The international community responded with support for Pakistan. Many individual countries, including the United States, sent significant amounts of aid and collaborated in rescue efforts to make sure all citizens were safe.[81] Organizations, including NATO and the United Nations, were also quick to provide support and financial aid.[82] Additionally, specialized

[80] Christopher Admire and United States Army, *Pakistan Police Unload Relief Supplies from a UH-60 Black Hawk Helicopter at a Stadium in the Town of Muzzaffarabad, Pakistan*, October 11, 2005, Online image, *Picryl*, October 11, 2005, https://picryl.com/media/pakistan-police-unload-relief-supplies-from-a-uh-60-black-hawk-helicopter-at-611d4f.
[81] United States Department Of State, "U.S. Response to Pakistan's Earthquake Disaster," U.S. Department of State Archive, December 12, 2005, https://2001-2009.state.gov/r/pa/prs/ps/2005/57890.htm.
[82] North Atlantic Treaty Organization, "Pakistan Earthquake Relief Operation (2005-2006)," NATO, accessed July 2025, https://www.nato.int/cps/en/natohq/topics_50070.htm.

organizations provided assistance; for example, the World Health Organization provided health supplies and supported medical facilities.[83]

Pakistan received relief in several forms, such as monetary pledges, supplies, and personnel. The country needed air support to transport aid, so the United States dispatched eight military helicopters, which were repositioned from nearby Afghanistan.[84] Turkey sent a health ministry team comprising 32 doctors, along with other personnel. The Chinese government sent equipment and a rescue team with search dogs, and Saudi Arabia sent doctors, tents, and food to support rescue efforts on the ground.[85]

NATO played a central role in helping Pakistan after the earthquake in October 2005. Pakistan transmitted a request for assistance, and NATO approved major air operations the following day. NATO set up a field hospital with 60 beds to provide medical care, including complex surgeries. This hospital treated 4,890 patients and performed over 150 major surgeries. Air support was another major factor in the relief operation, as NATO delivered almost 3,500 tons of supplies over more than 150 flights.[86] The organization was able to help support injured individuals and distribute supplies to a major non-NATO ally.

[83] World Health Organization, "Earthquake in South Asia: WHO's Response," January 16, 2006, https://apps.who.int/gb/ebwha/pdf_files/EB117/B117_30-en.pdf.
[84] PBS News Hour, "Pakistan Struggles to Provide Relief to Quake Victims," PBS News, October 10, 2005, https://www.pbs.org/newshour/world/asia-july-dec05-quake_10-10.
[85] Al Jazeera News Agencies, "World Sends Quake Relief," *Al Jazeera*, October 9, 2005, https://www.aljazeera.com/news/2005/10/9/world-sends-quake-relief.
[86] North Atlantic Treaty Organization, "Pakistan Earthquake Relief Operation."

Pakistan Earthquake Frequency and Response Systems

Pakistan has suffered many damaging earthquakes throughout its history, and the country's location is a major factor in its frequency of earthquakes. The intersection of the Eurasian and Indian tectonic plates is highly seismically active, making Pakistan very prone to earthquakes.[87] Around 242 earthquakes hit Pakistan per year, which equates to about 20 per month. In other words, on any given day, Pakistan is more likely than not to experience an earthquake.[88] The prevalence of these natural disasters emphasizes the importance of a robust response.

Damages caused by the 2005 earthquake in Pakistan.[89]

[87] Pakistan National Disaster Management Authority, "Earthquake Guidelines," July 2024, https://www.ndma.gov.pk/storage/publications/July2024/00M1Uom84tPUFYoxFfNb.pdf.
[88] "Pakistan Earthquake Report," EarthquakeList.org, accessed July 2025, https://earthquakelist.org/pakistan/.
[89] Gregory Takats, *Destroyed Building in Muzaffarabad after the Earthquake (2005)*, November 23, 2005, Online image, *Wikimedia Commons*, November 23, 2005, https://commons.wikimedia.org/wiki/File:Destroyed_building_in_Muzaffarabad_after_the_earthquake_%282005%29.jpg.

The Earthquake Reconstruction and Rehabilitation Authority was established on October 24, 2005, shortly after the Federal Relief Commission (FRC). The Pakistan earthquake of 2005 provided the former's first major mission to rebuild and assist those affected by a natural disaster.[90]

Conditions Prior to the Earthquake

The citizens of Pakistan in 2005 had a record low household income of $290.07 per capita.[91] Many of them made their living through agriculture, manufacturing, and providing services. Their homes were generally not built to withstand earthquakes.

Pakistan had many infrastructure issues before 2005, including roads and buildings that were too weak or poorly maintained to withstand a natural disaster. Residential buildings suffered some of the greatest damage. Most construction in Pakistan consisted of unreinforced masonry buildings that were made of brick or stone but lacked steel bars or other forms of structural support. Such buildings displayed higher displacements and shear force, and thus were to blame for much of the physical damage.[92]

Other infrastructure issues involved roads and transportation. Specifically, major roads and highways were vulnerable to natural disasters, and many were closed due to landslides and

[90] Akmal Khan and United Nations Office for Disaster Risk Reduction, "Earthquake Reconstruction and Rehabilitation Authority," PreventionWeb, accessed July 2025, https://www.preventionweb.net/organization/earthquake-reconstruction-and-rehabilitation-authority.
[91] CEIC Data, "Pakistan Household Income per Capita," CEIC, accessed September 2025, https://www.ceicdata.com/en/indicator/pakistan/annual-household-income-per-capita.
[92] K. A. Korkmaz, "Seismic Safety Assessment of Unreinforced Masonry Low-Rise Buildings in Pakistan and Its Neighbourhood," *Natural Hazards and Earth System Sciences* 9, no. 3 (June 29, 2009): 1021–31, https://doi.org/10.5194/nhess-9-1021-2009.

collapsed bridges after the earthquake. Many areas were cut off via land routes for up to three months, causing many challenges in delivering aid.[93]

A United States helicopter lands in Pakistan to bring aid.[94]

The Earthquake of 2005

The 2005 Pakistan earthquake's catastrophic force affected the physical landscape of the region. While Pakistan suffered most of the damage, neighboring countries also felt tremors.

[93] Engineers Daily, "The Kashmir Earthquake of October 8, 2005: Impacts in Pakistan," Engineersdaily, January 26, 2017, https://www.engineersdaily.com/2017/01/the-kashmir-earthquake-of-october-8-2005-impacts-in-pakistan.html.
[94] Quinton Russ and United States National Archives, *A US Army (USA) CH-47 Chinook Helicopter Prepares to Land at Balakot, Pakistan*, November 26, 2005, Online image, *NARA & DVIDS Public Domain Archive*, November 26, 2005, https://nara.getarchive.net/media/a-us-army-usa-ch-47-chinook-helicopter-prepares-to-land-at-balakot-pakistan-9d3ff9.

Balakot, **Muzaffarabad**, and other cities were turned into rubble within minutes due to unreinforced masonry construction.[95]

Houses and residential buildings collapsed in the cities, but destruction also reached other critical educational and healthcare facilities. Many schools crumbled, preventing students from attending school after the disaster. Structural damage rendered hospitals unusable, so temporary hospitals were established.[96] These installations provided emergency medical care outdoors and in tents. Utilities were also severely damaged, leading to a loss of running water and electricity.

The damage to affected areas was catastrophic and caused many fatalities. After the earthquake, many countries and organizations, including NATO, united to assist Pakistan in recovery and aid efforts, which included personnel, supplies, and equipment.[97] NATO, in particular, deployed personnel and supplied over 3,500 tons of urgently needed supplies.[98] International support was central to Pakistan's recovery.

[95] Saif Hussain et al., "The Kashmir Earthquake of October 8, 2005: Impacts in Pakistan," February 2006, https://www.eeri.org/lfe/pdf/kashmir_eeri_2nd_report.pdf.
[96] Editorial Committee, "The Shaking Disaster of October 2005 – Aftermath and Experiences," *Pakistan Armed Forces Medical Journal* 56, no. 4 (December 2006): 325–26, https://pafmj.org/PAFMJ/article/view/1327.
[97] International Rescue Committee, "Responding to the Most Destructive Earthquake in Pakistan's History," International Rescue Committee, October 5, 2015, https://www.rescue.org/article/responding-most-destructive-earthquake-pakistans-history.
[98] North Atlantic Treaty Organization, "Pakistan Earthquake Relief Operation (2005-2006)," NATO, accessed July 2025, https://www.nato.int/cps/en/natohq/topics_50070.htm.

Past Actions

In the immediate aftermath of the October 8, 2005 Kashmir earthquake, the government of Pakistan took swift action to respond to one of the worst natural disasters in the country's history. Initially, the absence of a dedicated disaster response mechanism proved detrimental. Within 48 hours, the army was mobilized for a search-and-rescue mission. However, there were delays due to weather and damaged infrastructure. Significant military losses also led to a lack of assistance in some areas.[99] To combat these issues, the Pakistani government quickly established the Federal Relief Commission on October 10, 2005. This body was tasked with coordinating initial relief efforts, but its hasty establishment highlighted the need for long-term authority.

The lack of preparedness was not only institutional but also infrastructural. Hospitals, schools, and other buildings had not been made to withstand seismic activity. The absence of a centralized national body for disaster risk reduction prior to the earthquake resulted in a more reactive response. The earthquake thus became a stark wake-up call for institutional reform and organization of a better response system.

On October 24, 2005, the **Earthquake Reconstruction and Rehabilitation Authority (ERRA)** was created, under the Prime Minister's office, to oversee a sustained reconstruction and rehabilitation effort across nine districts of Khyber Pakhtunkhwa (an affected Pakistani province) and the Pakistan-administered Kashmir region.[100] ERRA was tasked with supervising reconstruction budgets, creating earthquake-resistant construction standards, coordinating with donors, and organizing over 13,000 projects. These projects covered areas such as housing,

[99] Steve Coll, "Fault Lines," The New Yorker, November 14, 2005, https://www.newyorker.com/magazine/2005/11/21/fault-lines.
[100] The New Humanitarian, "Pakistan: 'Building Back Better' in Quake Zone," PreventionWeb, May 13, 2010, https://www.preventionweb.net/news/pakistan-building-back-better-quake-zone.

health, education, water and sanitation, and transport infrastructure.[101] By the spring of 2010, ERRA reported the reconstruction of approximately 436,000 rural houses and the completion or near-completion of 80% of its public services infrastructure projects.[102]

In addition to managing large-scale reconstruction projects, ERRA successfully rebuilt houses using readily available materials to comply with seismic resistance standards. Through these efforts, a culture of **seismically resistant construction** has been established in the areas impacted by the earthquakes. Efforts were also made to raise international awareness of the need for such construction.[103]

A previously destroyed building undergoing reconstruction with concrete reinforcement.[104]

[101] Akmal Khan and United Nations Office for Disaster Risk Reduction, "Earthquake Reconstruction and Rehabilitation Authority," PreventionWeb, accessed July 2025, https://www.preventionweb.net/organization/earthquake-reconstruction-and-rehabilitation-authority.
[102] Habitat for Humanity Pakistan, "Earthquake Response in Pakistan," Habitat for Humanity, accessed July 2025, https://www.habitatforhumanity.org.uk/what-we-do/natural-disaster-response/earthquake-response-in-pakistan.
[103] Pakistan National Disaster Management Authority, "Earthquake 2005 Recovery and Reconstruction," Economic and Social Commission for Asia and the Pacific, accessed July 2025, https://www.unescap.org/sites/default/files/item3_2005%20Pakistn%20earthquake%20recovery%20ppt_0.pdf.
[104] Bruce MacRae, *Reinforced Concrete Provides the Basic Infrastructure for Most New Buildings*, April 24, 2010, Online image, Flickr, April 24, 2010, https://www.flickr.com/photos/bruce_macrae/4548587928/.

Pakistan received numerous international contributions as well. At the International Donors' Conference held in Islamabad on November 19, 2005, 75 countries and institutions pledged a total of approximately $6.2 billion through grants, loans, and in-kind support. One of the biggest donors was Saudi Arabia, who sent over $593 million to Pakistan. The United States pledged around $510 million, including transportation, military, and reconstruction support. China and Iran were also large contributors. Multilateral donors included the World Bank, the Asian Development Bank, and the Islamic Development Bank.[105]

International non-governmental organizations and UN agencies played a vital role in providing emergency shelter, food, water, and sanitation services. Doctors Without Borders (Médecins sans frontières), the International Red Cross and Red Crescent Movement, and the United Nations Children's Fund (UNICEF) made significant contributions. The United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) coordinated much of the relief response through the Cluster Approach, which entailed organizing relief efforts into key groups such as shelter, health, and logistics. This initiative was first applied during the earthquake response in Pakistan. Since then, it has been used in more than sixty different nations to deliver humanitarian support. The Cluster Approach allows for both UN and non-UN partners to work together, covering fifteen technical areas of humanitarian action. The method has increased transparency and prevented the repetition of chaotic early relief efforts since the 2005 earthquakes.[106]

[105] United States Senate Committee on Foreign Relations, "Pakistan Earthquake: International Response and Impact on U.S. Foreign Policies and Programs," *GovInfo*, December 2005, https://www.govinfo.gov/content/pkg/CPRT-109SPRT25130/html/CPRT-109SPRT25130.htm.
[106] United Nations High Commissioner for Refugees, "Cluster Approach," UNHCR, accessed July 2025, https://emergency.unhcr.org/coordination-and-communication/cluster-system/cluster-approach.

Gender-sensitive recovery was also incorporated in relief efforts to varying levels of success. Of the reconstructed housing, female-headed households comprised approximately sixteen percent. Women made up thirty percent of trainees in reconstruction and livelihood skills workshops, falling short of initial targets.[107] Representation in project-level committees and decision-making bodies was limited. However, ERRA made efforts to create a more inclusive environment through gender working groups to integrate women's concerns across sectors.

Despite these limitations, gender inclusivity in recovery efforts initiated a significant shift. For example, the United States Agency for International Development (USAID) worked with the government of Pakistan to advocate for this inclusivity in relief efforts. Since then, a USAID program in Pakistan has implemented several key initiatives, including: 1) delivering medical, legal, and psychological support to nearly 61,000 women affected by gender-based violence, and 2) granting over 6,600 higher education scholarships to young Pakistani women.[108]

[107] USAID Adapt Asia-Pacific, "Case Studies of Sectoral Projects Using Gender Best Practices," in *Integrating Gender in Climate Change Adaptation Proposals* (Asia-Pacific Adaptation Network), accessed July 2025, https://gendersourcebook.weadapt.org/8-case-studies-of-sectoral-projects-using-gender-best-practices/i-disaster-recovery-earthquake-displaced-people-livelihood-restoration-program-pakistan.
[108] Evidence for Gender and Education Resource, "USAID Pakistan Gender Equality," EGER, accessed July 2025, https://www.egeresource.org/profiles/programs/75c469d6-da48-4166-983c-c339a3607ab8.

Kashmir earthquake recovery efforts.[109]

[109] Department of Foreign Affairs and Trade, *Earthquake. Pakistan 2005*, July 20, 2006, Online image, *Wikimedia Commons*, July 20, 2006, https://commons.wikimedia.org/wiki/File:Earthquake._Pakistan_2005._Photo-_AusAID_%2810693971254%29.jpg.

Possible Solutions

Institutional Streamlining and Local Preparedness

One way to approach this disaster and similar ones in the future is through institutional streamlining. Relevant organizations and governmental agencies can be integrated into a single coherent system with clear protocols and minimal overlapping structures. Streamlining cooperation amongst various parties could reduce bureaucratic delays, especially in such time-sensitive situations. Additionally, establishing local groups that are trained in disaster response could aid in readiness for potential future disasters and response capacity. To reduce the overlap of various parties and groups, a tiered system of relief can regulate at all levels in Pakistan.

These local bodies could include community-based disaster response teams that would work directly with national disaster management authorities to tailor responses to respective geographic areas and their cultures. In addition, introducing disaster education to schools and community centers could be helpful in building a culture of preparedness.

Infrastructure and Early Warning Systems

Mandatory building codes could be enforced across all provinces, with annual audits and certifications. Pakistan can also promote monitoring networks with real-time alerts to residents in the surrounding area to serve as **early warning systems**. This could entail automated text, radio, or loudspeaker messages in the community to warn people of a potential threat.

Organizations could allocate more funding towards **Geographic Information Systems (GIS)** to map seismic hazard zoning more effectively. This could help in identifying vulnerable zones and adapting construction and evacuation plans accordingly.

Regional and International Coordination

Regional and international coordination could also prepare for a potential future threat. Emergency funds could be dedicated to earthquake-prone regions. Greater regional cooperation within South Asia to share training systems, technology, and mutual aid could also improve disaster readiness.

An international response task force in South Asia could also respond to natural disasters quickly and effectively. This body could be regulated under the United Nations or **South Asian Association for Regional Cooperation (SAARC)**.

Bloc Positions

Countries like the United States, United Kingdom, and Germany likely will advocate for the importance of transparency, especially regarding the efficient use of funding. They are also likely to call for the creation and implementation of stronger international frameworks that would allow for a more rapid mobilization of aid in future disasters. These nations may urge the integration of gender-sensitive and inclusive rebuilding efforts to ensure that no marginalized communities are left without help. Donor states could promote partnerships with non-governmental organizations to help deliver aid efficiently.

Most NATO members are likely to concur that Pakistan should receive aid. However, countries may disagree on what to prioritize.

Rapid Response

These nations play a significant role not only in monetary aid, but also in direct humanitarian assistance and various other methods of support. The United States deployed military helicopters for airlifting supplies and saving victims, while various European nations contributed to rebuilding infrastructure and restoring health services. This bloc emphasizes short-term, immediate recovery, such as constructing temporary field hospitals.

Long-Term Prevention

This bloc typically prioritizes long-term sustainability and humanitarian efforts to rebuild, possibly at the expense of immediate recovery. Member states are likely to advocate for strengthening Pakistan's disaster response in the future. These efforts might consist of new reinforced construction or the establishment of broader and more modern seismic alert systems.

Glossary

Disaster response - An organized effort to provide relief after an area has experienced damage from a natural disaster.

Early warning systems - Technologies that inform communities in advance of a potential impending natural disaster. Such systems are intended to prevent casualties and damage.[110]

Earthquake Reconstruction and Rehabilitation Authority (ERRA) - A federal institution of Pakistan that was created after the 2005 earthquake. It is intended to oversee long-term reconstruction after the disaster.[111]

Federal Relief Commission (FRC) - A governmental body created by the Prime Minister of Pakistan after the disaster. This organization led the initial emergency response following the earthquake.[112]

Geographic Information System (GIS) - Technology used to analyze and visualize geographic data. GIS is helpful in disaster management because it can identify high-risk zones.[113]

Magnitude (of an earthquake) - A measurement on the moment magnitude scale that describes how much energy is released by an earthquake.[114]

[110] United Nations Educational, Scientific and Cultural Organization, "Early Warning Systems," UNESCO, accessed September 2025, https://www.unesco.org/en/disaster-risk-reduction/ews.
[111] Akmal Khan and United Nations Office for Disaster Risk Reduction, "Earthquake Reconstruction and Rehabilitation Authority," PreventionWeb, accessed July 2025, https://www.preventionweb.net/organization/earthquake-reconstruction-and-rehabilitation-authority.
[112] Government of Pakistan, "Pakistan: Government Sets up Federal Relief Commission," *ReliefWeb*, October 10, 2005, https://reliefweb.int/report/pakistan/pakistan-government-sets-federal-relief-commission.
[113] United States Geological Survey, "What Is a Geographic Information System (GIS)?" USGS, accessed September 2025, https://www.usgs.gov/faqs/what-a-geographic-information-system-gis.
[114] Michigan Technological University, "How Do We Measure Earthquake Magnitude?," Michigan Tech, accessed September 2025, https://www.mtu.edu/geo/community/seismology/learn/earthquake-measure.

Muzaffarabad - A city in the Pakistan-administered region of Kashmir that experienced some of the worst damage in the 2005 earthquakes.

National Disaster Management Authority (NDMA) - Pakistan's primary federal body for coordination of national disaster preparation, response, and recovery initiatives.[115]

Moment magnitude scale - A system used to measure the strength of an earthquake. The scale is logarithmic, meaning that one step higher represents approximately 32 times more energy. The moment magnitude scale is often erroneously referred to as the **Richter scale**, which is outdated.[116]

Seismically resistant construction - Building techniques designed to withstand earthquakes and minimize structural damage.

South Asian Association for Regional Cooperation (SAARC) - A regional intergovernmental organization that promotes cooperation amongst South Asian countries.[117]

[115] Pakistan National Disaster Management Authority, "Earthquake 2005 Recovery and Reconstruction," Economic and Social Commission for Asia and the Pacific, accessed July 2025, https://www.unescap.org/sites/default/files/item3_2005%20Pakistn%20earthquake%20recovery%20ppt_0.pdf.
[116] Michigan Technological University, "Earthquake Magnitude."
[117] South Asian Association for Regional Cooperation, "About SAARC," SAARC, July 12, 2020, https://www.saarc-sec.org/index.php/about-saarc/about-saarc.

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The New Humanitarian. “Pakistan: ‘Building Back Better’ in Quake Zone.” PreventionWeb, May 13, 2010. https://www.preventionweb.net/news/pakistan-building-back-better-quake-zone.

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