LUISS

Degree Program in Political Science

Course of Strategic Studies

Fragile Grounds: How Resource Scarcity and Unequal Distribution Threaten International Security

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Academic Year 2023/2024

Abstract

This dissertation aims to demonstrate how resource scarcity and unequal distribution pose significant threats to both national and international security.

This study explores this cause-effect relationship through both qualitative and quantitative approaches. In particular, it employs a series of case studies to provide the reader with vivid examples of the points made and it describes and analyzes numerical data and different quantitative graphs, to stimulate empirical thinking to a greater extent.

Structurally, the research consists of an explanatory introduction, *Framing the Issues*, followed by three core chapters, ending in a conclusive section. Chapter One, *The Price of Plenty*, delves into fundamental concepts and perspectives on resource scarcity. Chapter Two, *Internal Cracks*, examines the impact of resource shortages on national security, whereas Chapter Three, *Tides of Tension*, addresses their effects on human life and international security. The conclusion, *Quicksand,* summarizes the findings and addresses the future.

After defining key terms such as "resource", "scarcity" and "security", the thesis argues that lack of and unequal access to natural assets exacerbate risks to both national and international stability. Domestically, resource scarcity and uneven access strain national institutions, weaken economic performance, incite social unrest, exacerbate crimes, and cause foreign interference. On the international stage, these factors cause diplomatic tensions, border skirmishes, may drive conflicts over resource control and overall increase the likelihood of global disputes.

The findings reaffirm the central argument: in a rapidly evolving and environmentally struggling global scenario, when key natural resources are scarce and unevenly distributed, both national and international peace are at considerable risk.

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And everyone who hears these words of mine
and does not put them into practice
is like a foolish man who built his house on sand.
The rain came down, the streams rose, and the winds blew
and beat against that house, and it fell with a great crash.

Matthew 7:26-27

Introduction

We live in a time of unprecedented international interconnectedness. In the current global context, the scarcity and unequal distribution of vital natural resource have silently become significant factors, shaping both the manifest and hidden dynamics of international relations. Far from being merely abstract economic concerns or foolish paranoia of overly pessimistic individuals, these worrying issues lie at the very heart of numerous geopolitical altercations, straining diplomatic relationships, exacerbating internal unrest and threatening global peace. As climate change, a rampant yet lurking phenomenon, persists in accelerating, and the world's population keeps flourishing at an impressive rate, a masterful management of scarce, key resources has become an indispensable skill with sweeping implications for our stability.

This dissertation aims to illustrate how resource scarcity and uneven access to crucial natural assets impose serious threats to both national and international security. Nationally, the two factors may worsen domestic institutions, cause economic instability, fuel criminal offenses and facilitate foreign interference and overexploitation. Internationally, they could damage diplomatic relations, originate border skirmishes, result in violent incidents or even lead to the act of war. This research employs detailed analyses of several case studies from diverse geopolitical contexts, to strengthen the argument aforementioned. Moreover, the study integrates empirical evidence, in order to provide the reader with a refined understanding of how the focus of this thesis manifest in the real world and constantly impact the everyday life of billions of people around the globe.

Methodologically, this document attempts to adopt a mixed approach, fusing qualitative and quantitative framework. By combining the exploration of case studies with statistical data and graphical representation, the thesis pursues a comprehensive study on how resource criticalities adversely affect different geopolitical scenarios. The choice of the methodology falls on the attempt to address the tendency of international relations discourse to rely heavily on theoretical approaches. While theoretical perspectives are often absolutely essential, they may occasionally lack the concrete specificity needed for a clearer understanding. By showcasing different case studies and charts, this thesis aims to add empirical substance to the arguments, making the analysis more relatable and adequate to capture the material consequences of the problem.

The structure of this work is carefully designed to guide the reader through a progressively increasing understanding of the matter. Chapter one, “Framing the Issue”, lies the foundations for the diagnosis, defining essential notions regarding resource scarcity, hence establishing the conceptual basis of the analysis. Chapter two, “The Price of Plenty”, delves deeper into the issue, acknowledging the two main categories of scarcity, absolute and relative, and briefly mentioning several cardinal assets affected by each of them. Chapter three, “Internal Cracks”, focuses on the domestic implications of resource shortages and an uneven access, investigating how they fuel national crises, which subsequently pose additional pressure on neighboring states and occasionally broader regions. Chapter four, “Tides of Tension”, is the core of this research, as it expands the scope to the global arena, inspecting how the two issues provoke diplomatic quarrels which may evolve into armed confrontations and possibly outright wars. The conclusive section, “Quicksand”, summarizes the findings, reflecting on the significance of a lack or uneven access to resources in undermining the future status of international order.

The stakes have never been higher. It is believed that failing to address such problems would absolutely constitute a remarkable challenge to the survival of peace. The path ahead looks intricated and quite alarming. However, the author is confident that humankind will successfully address these issues, proving yet again our resilience, determination and intelligence. In fact, the reader should not panic: the challenges are indeed pressing and grave, yet there remains room for meaningful change and improvement. Through education, international cooperation and technological innovation, it is firmly assumed we still possess the ability to steer the wheel towards calmer and more prosperous waters.

The threats are real, but so are the opportunities.

Chapter One: Framing the Issue

1.1 Scarcity 101

Lord Lionel C. Robbins, a distinguished British economist of the XX century, gave his definition of economics in the first edition of his book "An Essay on the Nature and Significance of Economic Science", published in 1932. He stated that "Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses"[1] (Robbins, 1932: p. 15).

Robbins' definition could be prone to some critiques. As Blaug (2023) states, one could argue that the game of chess would be matter of economics, it being played with only so many pieces and time yet to achieve a specific goal; and again, one could state that macroeconomic matter, such as the inflation rate or the prices level would be excluded from economics, because of the definition overlooking larger-than-individual issues[2]. However, it still owns a certain degree of fascination and influence. It could be so for it links the concept of economics itself, a discipline usually labeled as "precise", "rational" and "predictable" to human behavior, a topic which has traditionally been condemned for centuries as "obscure", "illogical" and "speculative". Lord Robbins defines its field as a "*science*", indeed.

Although this thesis does not primarily revolve around the subject of economics itself, nor the author has the adequate academic knowledge to do so rightfully, it is absolutely unfeasible to deal with concepts such as "resource scarcity", "resource distribution" et cetera without composing a concise and useful introduction which sinks its roots inside the economic field.

[1] Lionel Robbins, *An Essay on the Nature and Significance of Economic Science*, *Mises Institute* (London, UK: MacMillan and Co., 1932), 15, https://cdn.mises.org/Essay%20on%20the%20Nature%20and%20Significance%20of%20Economic%20Science_2.pdf.

[2] Mark Blaug, "economics," in *Encyclopedia Britannica*, 2023, accessed August 18, 2024, https://www.britannica.com/money/economics.

1.2 Nature's Treasures

Before considering why global leaders, economists, newspapers, environmental activists and other stakeholders often discuss the "scarcity" of resources, it is essential to first grasp the meaning of the term "natural resource" itself. Encyclopedia Britannica provides a clear diagnosis, by defining a "natural resource" as "Any biological, mineral, or aesthetic asset afforded by nature without human intervention that can be used for some form of benefit, whether material (economic) or immaterial"[3]. Such perspective highlights their inherently congenital essence in the environment, as they are the exact opposite of artificial resources, produced by human interference. Furthermore, it underlines their dual value, since natural assets not only provide tangible but intangible rewards as well: a forest, *exempli gratia*, grants material economic gains through timber production and immaterial value as a possible recreational space. The same paragraph further mentions that "Examples of assets that can be considered natural resources include forests, surface water and groundwater, and the fertile land or the soil and minerals within them […] as well as energy resources (such as petroleum, natural gas, and heated water [that is, geothermal energy]) contained within layers of rock"[4] (Encyclopedia Britannica, 2024).

The most interesting and closest point to this research is that natural resources could be exploited for whatever kind of concrete or abstract benefit: to link the very subject of this dissertation to the concept of *advantage* further proves the empirical statement that, from a certain perspective, those who *own* certain key natural resources have an intrinsic upper hand over those who do not.

1.3 Rich, yet… Poor?

In spite of the last statement, the possession and access to natural assets does not axiomatically imply that the countries whose geographical territory is rich in resources are necessarily in a better overall position. While ownership of crucial assets can provide a country with economic leverage and geopolitical power, that resource-rich states are necessarily in a

[3] The Editors of Encyclopedia Britannica, "Natural Resource | Ecology," in *Encyclopedia Britannica*, 2022, https://www.britannica.com/science/natural-resource.
[4] Ibid.

better overall position is indeed not always straightforward[5]. As an insightful article by Frederick Van Der Ploeg argues, natural resources can be recognized as both a "curse" and a "blessing" simultaneously[6] (Van Der Ploeg, 2011: p. 366). Due to the significance of the point, it is essential to briefly present a concrete example showing that resource wealth does not automatically equate to overall national advantage.

According to a Nasdaq article, Chile is nowadays the world's largest producer of copper, resulting in about 5.000.000 metric tons ("MT" from here onwards) of copper, approximately 23% of the total global copper output[7] (Pistilli, 2024). Chile will also likely remain the global leader for the next few years, as, according to S&P Global, it may boost its copper production to 6.000.000 MT[8] (Azzopardi, 2024). Its lead is utterly impressive, considering second-ranked Peru produces about *half* of Chile's total output[9].

Furthermore, Chile is second-ranked in lithium production in 2024, mainly extracting said asset from lithium brine deposits, such as the famous Salar de Atacama salt flat: it produced about 44.000 MT in 2023, 21% of worldwide production[10], only behind Australia's gigantic 86.000 MT production[11]. Alongside the Land Down Under and China, Chile accounted for 88% of lithium *global* production in 2023.

Hence, Chile is extremely rich in two natural resources of vital economic relevance: to give an idea, current Chief Strategy Officer of Energy Pathways at Carlyle Jeff Currie told Bloomberg TV "Copper is the new oil" on May 14th, 2024: he predicted prices soaring up to

[5] Natural Resource Governance Insitute, "The Resource Curse. The Political and Economic Challenges of Natural Resource Wealth" (NRGI, March 2015), https://resourcegovernance.org/sites/default/files/documents/nrgi_primer_resource-curse.pdf.
[6] Frederick Van Der Ploeg, "Natural Resources: Curse or Blessing?" *Journal of Economic Literature* 49, no. 2 (2011): 366, https://www.jstor.org/stable/pdf/23071620.pdf.
[7] Melissa Pistilli, "Top 10 Copper Producers by Country," Nasdaq, 2024, accessed August 19, 2024, https://www.nasdaq.com/articles/top-10-copper-producers-by-country-updated-2024.
[8] Tom Azzopardi, "Chilean Copper Output Expects Fast Recovery after a 15-Year Low in 2023," S&P Global (S&P Global Commodity Insights, January 15, 2024), Accessed August 19, 2024, https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/011524-chilean-copper-output-expects-fast-recovery-after-a-15-year-low-in-2023.
[9] Melissa Pistilli, "Top 10 Copper Producers by Country," Nasdaq, 2024, accessed August, 2024, https://www.nasdaq.com/articles/top-10-copper-producers-by-country-updated-2024.
[10] The percentages in this paragraph were calculated by the author according to the data available at https://www.voronoiapp.com/_next/image?url=https%3A%2F%2Fcdn.voronoiapp.com%2Fpublic%2Fimages%2Fvoronoi-Three-Countries-Account-for-Almost-90-of-the-Lithium-Used-in-EVs-20240430134113.webp&w=1200&q=75.
[11] Bruno Venditti, "Ranked: The World's Largest Lithium Producers in 2023.," Visual Capitalist, May 24, 2024, https://www.visualcapitalist.com/ranked-the-worlds-largest-lithium-producers-in-2023/.

$15.000 per ton for it[12]. As for lithium, a 2024 International Energy Agency report forecasts that its total demand, about 165.000 MT in 2023, could rise to 1.326.000 MT in 2040[13], an approx. 700% increase[14]. Copper and lithium's growing demand stems from the key role they play in today's society: the former is indispensable in manufacturing electric motors, batteries and power grids, wind turbines and solar panels, electric vehicles et cetera[15]; the latter is a vital element in rechargeable batteries for smartphones, laptops, tablets as well as non-rechargeable batteries for heart pacemakers, toys, clocks and so forth[16].

In spite of this theoretical position of privilege, a high family income inequality (Gini index at 0.43 in 2022[17]), high unemployment (9% unemployment rate in 2023[18]), damaging environmental incidents[19], a critical need for new policies and innovation[20], alongside several other political, cultural and socioeconomic substandard factors, account for its current unsatisfactory economic performance. Chile's condition is one of the many possible examples of countries that, albeit owning significant key resources in noteworthy quantity, are not currently able to mirror their position of privilege in their economic execution, due to significantly complex and intertwined causes[21].

[12] Jason Ma, "'Copper Is the New Oil,' and Prices Could Soar 50% as AI, Green Energy, and Military Spending Boost Demand, Top Commodities Analyst Says," Yahoo Finance (Yahoo Finance, May 19, 2024), accessed September 4, 2024, https://finance.yahoo.com/news/copper-oil-prices-could-soar-193948923.html.
[13] International Energy Agency, "Global Critical Minerals Outlook 2024" (IEA, May 2024), accessed September 2, 2024, https://iea.blob.core.windows.net/assets/ee01701d-1d5c-4ba8-9df6-abeeac9de99a/GlobalCriticalMineralsOutlook2024.pdf.
[14] Calculated as: Percentage increase = [(Final value - Starting value) / |Starting value|] * 100. Britannica's Percent Increase Calculator has been used in this case. Available at: https://www.britannica.com/calculators/percent-increase-calculator.
[15] Royal Society of Chemistry, "Copper - Element Information, Properties and Uses | Periodic Table," Rsc.org (Royal Society of Chemistry), accessed September 8, 2024, https://www.rsc.org/periodic-table/element/29/copper.
[16] Royal Society of Chemistry, "Lithium - Element Information, Properties and Uses | Periodic Table," Rsc.org (Royal Society of Chemistry), accessed September 8, 2024, https://www.rsc.org/periodic-table/element/3/lithium.
[17] CIA, "Gini Index Coefficient – Distribution of Family Income," The World Factbook, accessed August 20, 2024, https://www.cia.gov/the-world-factbook/field/gini-index-coefficient-distribution-of-family-income/country-comparison/.
[18] World Bank Group, "Unemployment, Total (% of Total Labor Force) (National Estimate) - Chile | Data," data.worldbank.org, 2024, https://data.worldbank.org/indicator/SL.UEM.TOTL.NE.ZS?locations=CL.
[19] The Economist, "Chile's Crisis Is Not over Yet," economist.com, February 15, 2024, https://www.economist.com/the-americas/2024/02/15/chiles-crisis-is-not-over-yet.
[20] Ibid.
[21] Erin Hardick, "Why Chile's Copper and Lithium Mining Dominance Is Starting to Slip," Latitude Media (Latitude Media, July 1, 2024), https://www.latitudemedia.com/news/why-chiles-copper-and-lithium-mining-dominance-is-starting-to-slip.

1.4 The Resource Riddle

As it was proved in the previous section, the possession and access to vital resources, even if in great quantity (and, occasionally, almost exclusively), do not automatically grant one success and widespread wealth. However, their scarcity or absence is certainly not an enviable position either. There are several reasons as for why it is so: economic limitations and dependency on imports, political and social instability, strategic vulnerability to external pressure, barriers to technological advancement and overall social development, environmental degradation and overexploitation et cetera. It is wholeheartedly believed that the advantage one could profit from is so enormous that the scarcity of resources and their unequal, yet possibly inevitable current distribution or access pose a remarkable and weighty threat to national safety and the overall international security status.

This chapter has attempted to lay the groundwork for understanding the intricacies of resource scarcity. Through the case study of Chile, it has been demonstrated that owning abundant important natural resources does not guarantee national success. The "resource curse", excellently introduced to the academic field by Auty (1993)[22], underlines that the mere scarcity of an asset, absolute from the context it exists into, is not always the correct standpoint: it may be for a conceptual argument, whereas it is certainly not adequate for a material analysis. Rather, the focal point should be how nations manage, distribute and safeguard their resources: this may possibly be more useful in the practical reasoning around such issue. This is the reason why, throughout this dissertation, the author tried to broach and include socioeconomic, cultural and political factors, aiming to capture the tacit or explosive dynamics which may drive nations to the brink of collapse and conflict.

The following chapter will further explore key notions and steadily break down scarcity into two major categories. It is imperative to recall that scarcity itself is a considerably broad term and should be divided into smaller and more digestible groups.

[22] Richard Auty, *Sustaining Development in Mineral Economies*, 1st ed. (London, UK: Routledge, 1993), https://doi.org/10.4324/9780203422595.

Chapter Two: The Price of Plenty

2.1 Resource Scarcity

> Taking the whole earth instead of this island, emigration would of course be excluded; and supposing the present population equal to a thousand millions, the human species would increase as the numbers 1, 2, 4, 8, 16, 32, 64, 128, 256, and subsistence as 1, 2, 3, 4, 5, 6, 7, 8, 9. In two centuries the population would be to the means of subsistence as 256 to 9; in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable. [23] (Malthus, 1803, p. 8)

Despite T. R. Malthus' predictions about the ratio between the world population and the means of subsistence for a moment in time around the present ("in two centuries […]") turned out to be astronomically incorrect – the actual ratio is extremely difficult to calculate, but it undoubtedly being closer to 1:1 than 512:10[24] – still, the unsettling thoughts behind his theories provide a discrete sway on nowadays' preoccupation for the world's resources level.

To begin the first chapter with such a dramatic statement properly conveys the idea of resource scarcity, which will be inspected in the next few sections. It is imperative to state that the focus of this section will not be centered on the impact of overpopulation on climate, as Malthus gained fame and was criticized for[25], whereas to introduce the idea of shortage, taking account not only of the qualitative aspect of the term but its quantitative meaning as well. Despite Malthus's overzealous forecasts highlight a historic concern about the balance between population and resources, it is crucial to acknowledge that modern understanding of the concept of resource scarcity has deeply and significantly evolved. As University of California Riverside's Dr. Jade S. Sasser's *on Infertile Ground: Population Control and Women's Rights in the Era of Climate Change* rightfully notes:

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[23] Thomas Robert Malthus, *An Essay on the Principle of Population. Or a View of Its Past and Present Effects on Human Happiness*, 2nd ed. (London, UK: J. Johnson, St. Paul's Church-Yard, 1803), 8, https://archive.org/details/principleessayon00maltrich/page/ii/mode/2up.

[24] While *global* food production has kept pace with population growth overall, this balance is not uniform across all regions. Some areas experience food surpluses, while others face chronic shortages, reflecting the current unequal resource distribution and uneven access to vital products.

[25] Among Malthus's numerous critics, one of the most famous and wrathful was Karl Marx. The co-author of the Communist Manifesto saw Malthusian ideas as a way of justifying economic inequality and the capitalist exploitation of the working class. Furthermore, he often labeled Malthus as a "plagiarist" and a "sycophant", according to Wiltgen (1998).

> What I do argue is that there is not, and never has been, a single, evidence-based model that has successfully calculated or predicted the global environmental impact of human numbers alone. Local context, resource consumption, polluting technologies, state- and corporate-based resource extraction and pollution, and the environmental impacts of military operations all make it impossible to produce such a number on a global scale.[26] (Sasser, 2018, p. 50).

The multidisciplinary nature of the problem may lead some to dismay and discourage further discussion as it demands a noteworthy deep empirical analysis. Yet, this very complexity underlines the urgent need for collaborative efforts across academic disciplines. In order to fend off this intricacy, it is utterly essential to distinctly define what "resource scarcity" means.

The most immediate field related to the analysis of the theme is, yet again, economics. As Nobel Prize-winning economists Paul Samuelson and William Nordhaus' stated:

> No society has reached a utopia of limitless possibilities. Ours is a world of scarcity, full of economic goods. A situation of scarcity is one in which goods are limited relative to desires. An objective observer would have to agree that, even after two centuries of rapid economic growth, production in the United States is simply not high enough to meet everyone's desires. If you add up all the wants, you quickly find that there are simply not enough goods and services to satisfy even a small fraction of everyone's consumption desires. Our national output would have to be many times larger before the average American could live at the level of the average doctor or major-league baseball player. Moreover, outside the United States, particularly in Africa, hundreds of millions of people suffer from hunger and material deprivation. Given unlimited wants, it is important that an economy make the best use of its limited resources. That brings us to the critical notion of efficiency. [27] (Samuelson and Nordhaus, 2009, p. 4).

The brilliance of this passage cannot be overstated: it provides a clear, efficient, simple and evocative definition of scarcity. Mentioning the United States of America, currently the benchmark for almost every economic parameter, underscores the point that scarcity is an inherent condition of reality: even the most advanced and economically powerful nation on the globe does not have the capability to escape the intrinsic limited nature of certain resources. This observation suggests that scarcity is not just a challenge for developing

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[26] Jade S. Sasser, *On Infertile Ground: Population Control and Women's Rights in the Era of Climate Change.* (New York City, US: NYU Press, 2018), 50, https://www.perlego.com/book/833906/on-infertile-ground-population-control-and-womens-rights-in-the-era-of-climate-change.

[27] Paul A. Samuelson and William D. Nordhaus, *Economics*, 19th ed. (Boston, US: Mcgraw-Hill, 2009), 4.

nations or those with fewer resources: it is a fundamental aspect of the human condition, affecting every society regardless of its wealth or technological potential. That some states are better equipped to address this fact than others is an undeniable statement; though, every country should ponder, monitor and improve its management of this universal condition.

Fredrik Albritton Jonsson and Carl Wennerlind, authors of the insightful "Scarcity: A History from the Origins of Capitalism to the Climate Crisis", published by Harvard University Press, offer another compelling outlook on scarcity: "The conception of nature as scarce, yet capable of infinite improvement and infinite substitutability, has proven remarkably effective in promoting economic growth and ever-expanding consumption. Yet this conception of scarcity is also at the heart of the planetary crisis we now face"[28] (Albritton Jonsson and Wennerlind, 2023, p. 2).

This perspective underlines why discussing "resource scarcity" is not merely an abstract concept, yet a fundamental truth intrinsic to the geopolitical realities of today. Jonnson and Wennerlind's take demonstrates how the very notion of scarcity has proven to be a double-edged sword: it has driven the global economy's expansion, which in turn intensifies the demand for limited resources. To put it briefly, as economies grow, they tend to place greater pressure on finite resources, thus exacerbating scarcity. Such vicious cycles are among climate change's most puzzling and dangerous phenomena.

By combining what has so far been argued about both terms, "resource" and "scarcity", it becomes clear that a part of natural assets is indeed carrying within itself a certain degree of *finitude*. The very condition of boundedness itself, coupled with a handful of factors (e.g. the ever-growing demands of global consumption), shows to a greater extent the inherent limitations of our natural world. Thus, the inevitable challenges these limitations pose for international stability and security, which will be explored in depth in the following chapters.

"Resource scarcity" implies that there is simply *not enough* of an asset in adequate quantities: it does not necessarily imply that they are unequally distributed (which, they often are, but this issue will be explored later on). For instance, even if a resource like freshwater

[28] Fredrik Albritton Jonsson and Carl Wennerlind, Scarcity, (Harvard University Press, 2023), p. 2. https://www.perlego.com/book/3855855/scarcity-a-history-from-the-origins-of-capitalism-to-the-climate-crisis?queryID=25d1c357348aee4cdf532b69462fe032&index=prod_BOOKS&gridPosition=1&searchType=title.

were evenly distributed across the globe, the sheer scarcity of it would still pose significant challenges.

To properly convey an idea, consider that resources that are nowadays generally considered to be scarce include freshwater, arable land, fossil fuels, rare earth elements (RRE), sand[29] et cetera. It certainly does not require a civil engineering degree or any technical knowledge on materials to recognize that many of these assets are, to say the least, *fundamental* to human life. They are the very backbone of any human society. Thus, it is imperative to confront the chilling side of the issue: whether scarcity is real is not the question anymore. The question is how pressing its influence is on global security. The next chapters will seek to furnish an answer.

In exploring complex topics like resource scarcity, it is often helpful to divide them into more specific categories to enhance our understanding. In the following two sections, we will delve deeper into the two key types of scarcity – absolute and relative – each playing a crucial role in shaping global resource dynamics and their implications for international stability. Nonetheless, "[…] these are not categorical distinctions but are rather elements that provide different focus of the SAS issue"[30]. (Daoud, 2010, p. 1208)

2.2 Absolute Scarcity: Too Little

According to Oxford Reference, absolute scarcity is "a condition that exists when there is not enough of a resource in existence to satisfy existing demand for it"[31]. Absolute scarcity (for practical reasons, from here onwards "A.S".) has traditionally been linked to Malthusian ideas posthumously: "[…] a strong check on population, from the difficulty of acquiring food, must be constantly in operation. This difficulty must fall somewhere; and must necessarily be severely felt in some or other of the various forms of misery, or the fear of misery, by a large

[29] The author strongly suggests Ed Conway's *Material World: A Substantial Story of Our Past and Future*. The chapter dedicated to sand (but the whole book, truly) is nothing short of enlightening and it provides interesting takeaways on a substance humankind often takes for granted.
[30] Abel Daoud, "Robbins and Malthus on Scarcity, Abundance, and Sufficiency: The Missing Sociocultural Element," *The American Journal of Economics and Sociology* 69, no. 4 (October 2010): 1208, https://www.jstor.org/stable/20788963.
[31] Oxford Reference, "Absolute Scarcity," in *A Dictionary of Environment and Conservation* (Oxford, UK: Oxford University Press, 2013), https://www.oxfordreference.com/display/10.1093/oi/authority.20110803095344951#:~:text=A%20condition%20that%20exists%20when,satisfy%20existing%20demand%20for%20it.

portion of mankind"[32] (Malthus, 1803, p. 3). He himself repeatedly underlined the uneven growth rate between the two factors, population growing at an *exponential* rate, the means of subsistence at a *linear* one[33].

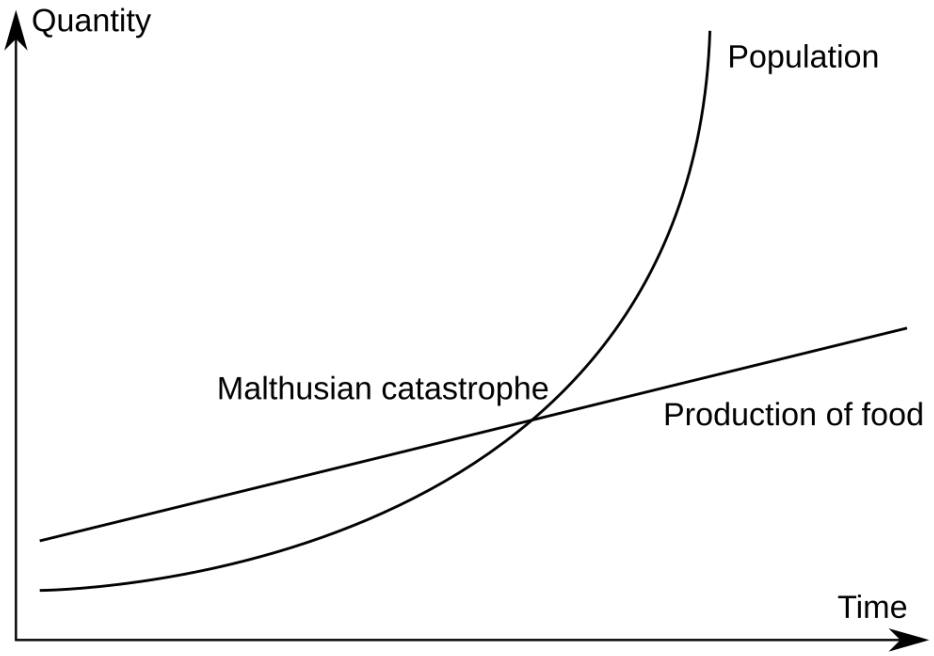

Figure 1. Malthusian Curve

Source: Wikimedia Commons[34]

Figure 1 shows the Malthusian catastrophe explained in basic terms. Malthus argued that since population grows exponentially while food production increases only at a linear rate, there will eventually come a moment (the point where the two curves intersect is the onset of the discrepancy) when the food supply becomes insufficient to properly support the population.

Malthus' views experienced a vigorous revival from the 1950s onwards, coinciding with the rise of the modern environmental movement (Bonasera, 2022)[35]. A couple of years

[32] Thomas Robert Malthus, *An Essay on the Principle of Population. Or a View of Its Past and Present Effects on Human Happiness*, 2nd ed. (London, UK: J. Johnson, St. Paul's Church-Yard, 1803), 3, https://archive.org/details/principleessayon00maltrich/page/ii/mode/2up.

[33] In mathematics, linear functions grow by equal differences over equal intervals. Exponential ones, on the other hand, grow by equal factors over equal intervals. Linear growth adds a constant amount each time period, while exponential growth increases by a constant factor, leading to a much more significant increment.

[34] https://commons.wikimedia.org/wiki/File:Malthus_PL_en.svg Licensed under Creative Commons Attribution-ShareAlike 4.0 International License.

[35] Jacopo Bonasera, "'Green' Malthus? A Bibliographical Itinerary between Neo-Malthusianism and Environmentalism," *Storicamente* 2022, no. 18 (2022): 3–4, https://doi.org/10.52056/9791254691984/11.

earlier, in March 1948, Henry Fairfield Osborn Jr.'s *Our Plundered Planet* had been published. Near the end of his book, Osborn Jr. argued:

> Finally, when will the truth come out into the light in international affairs? When will it be openly recognized that one of the principal causes of the aggressive attitudes of individual nations and of much of the present discord among groups of nations is traceable to diminishing productive lands and to increasing population pressures? Every country, all the world, is met with the threat of an oncoming crisis[36]. (Osborn Jr., 1948, p. 200)

Whether this crisis has already occurred, is currently unfolding or will ever truly happen remains up for debate. Nonetheless, there is a valuable insight to be drawn from Obsorn Jr.'s warning: were his apocalyptic scenario to materialize, the *entire* world would be at risk, with various degrees of threats and damages. Given the deeply intertwined nature of current international relations, the ripple effects would be felt by most, if not all, global actors. When one considers that events such as the 1972 poor grain harvest in the Soviet Union and the 1973 Oil Crisis contributed to cause the mid-1970s American car market crisis[37], it becomes clearer how a primary resource shortage due to scarcity, or any issue of the kind, could have a profound impact on nations across the planet (Yergin, 1991, Ch. 30).

During the 1960s and 1970s in particular, several influential works, such as Rachel Carson's 1962 *Silent Spring*, Paul Ehrlich's 1968 *The population bomb* and 1972 *The Limits to Growth* by the Club of Rome, further reinforced the idea of A.S. in nature and its potentially dire outcomes. These and many other key publications at the time were heavily influenced by the post-World War II economic and demographic boom, which undeniably exerted significant pressure on the environment. However, many of these forecasts, Ehrlich's above all, proved to be dramatically wrong: the societal collapse by the 1970s he believed was imminent did not in fact materialize, largely due to improvements in agricultural technology (e.g. the Green Revolution) and improved resource management practices[38].

While the dreadful predictions may have not come to pass, the concept of A.S. remains highly relevant in today's world. Several *critical* resources are nowadays generally considered

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[36] Henry Fairfield, *Our Plundered Planet* (Boston, US: Little, Brown and Company , 1948), 200–201, https://reader.library.cornell.edu/docviewer/digital?id=chla2932687#page/5/mode/1up.

[37] Daniel Yergin, "Bidding for Our Life" in *The Prize: The Epic Quest for Oil, Money & Power* (New York, US: Simon & Schuster, Cop, 1991), 614–32.

[38] Ehrlich's theories turning out to be wrong proves yet again that several environmental challenges can be addressed successfully through technological development and an efficient resource management. Yet, we should always bear in mind that not every incident can be easily solved and that solutions are rarely absolutely guaranteed to work.

to be affected by A.S. The use of the adjective "critical" is absolutely fitting, given the pivotal role these resources play in the current global economy and beyond. Their A.S. is scientifically recognized as an important issue: once these resources are depleted, they cannot be replaced or regenerated, at least not within any human timescale nor can they be comfortably substituted through technological development, so far. The following are adequate examples, chosen due to their particularly significant role in today's society:

- **FRESHWATER (IN CERTAIN REGIONS)**

  While freshwater is affected by the hydrological cycle and is generally considered renewable, in certain regions aquifers are being depleted faster that they can be recharged. In these cases, freshwater acts more like a non-renewable resource. These regions are Middle East and North Africa (MENA)[39], South Asia (India[40], Pakistan[41]), Central Asia (Aral Sea Basin)[42], Southern Africa (Botswana, Namibia, South Africa…)[43], Southwestern US (mainly California's Central Valley, Arizona and Nevada)[44], Australia's Murray-Darling Basin[45] and so forth.

- **ARABLE LAND**

  Fertile soil can be degraded to the point where it is no longer arable[46]. Restoring it to its previous state can take centuries or longer, depending on the extent of degradation. Thus, while theoretically renewable, in practice, it is often treated as non-renewable on a human timescale.

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[39] Shabbir A. Shahid and Mushtaque Ahmed, "Fostering Agriculture in the Context of Climate Change," in Environmental Cost and Face of Agriculture in the Gulf Cooperation Council Countries (Springer, 2014), 1–25, https://doi.org/10.1007/978-3-319-05768-2_1.

[40] Matthew Rodell, Isabella Velicogna, and James S. Famiglietti, "Satellite-Based Estimates of Groundwater Depletion in India," Nature 460, no. 7258 (August 2009): 999–1002, https://doi.org/10.1038/nature08238.

[41] Daanish Mustafa, "Hydropolitics in Pakistan's Indus Basin," www.usip.org (Washington DC, US: United States Institute of Peace, 2010), accessed September 5, 2024, https://www.usip.org/sites/default/files/SR261%20-%20Hydropolitics_in_Pakistan%27s%20_Indus_Basin.pdf.

[42] Michael H. Glantz, Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin (Cambridge, UK: Cambridge University Press, 1999), 1–24, https://catdir.loc.gov/catdir/samples/cam032/98024788.pdf.

[43] Peter Ashton and Anthony Turton, "Ater and Security in Sub-Saharan Africa: Emerging Concepts and Their Implications for Effective Water Resource Management in the Southern African Region," in *Globalization and Environmental Challenges* (Berlin, Germany: Springer, 2007), 661–74.

[44] Bridget R. Scanlon et al., "Groundwater Depletion and Sustainability of Irrigation in the US High Plains and Central Valley," *Proceedings of the National Academy of Sciences* 109, no. 24 (June 12, 2012): 9320–25, https://doi.org/10.1073/pnas.1200311109.

[45] R. Quentin Grafton et al., "Global Insights into Water Resources, Climate Change and Governance," *Nature Climate Change 3, no. 4 (November 25, 2013): 3, https://doi.org/10.1038/NCLIMATE1746*.

[46] FAO, "Soil Degradation," www.fao.org (FAO Soils Portal), accessed August 22, 2024, https://www.fao.org/soils-portal/soil-degradation-restoration/en/.

- **FOSSIL FUELS**

  Fossil fuels like oil, coal, and natural gas are considered non-renewable because they take millions of years to form. Once they are depleted, they cannot be replaced on any human timescale.

- **RARE EARTH ELEMENTS (REE) AND METALS**

  These elements and metals are finite because the Earth's supply is limited. While technically, the Earth's crust contains more, the economically viable concentrations are scarce, and once the current reserves are depleted, they cannot be easily replenished. Recycling is possible, but it does not replenish the original supply. Some REE are useful for the production of magnets in electronic devices, displays, batteries, wind turbines, solar panels, electric motors, defense systems, jet engines, cancer treatment and many more cases[47].

- **PHOSPHORUS**

  Phosphorus is mined from phosphate rock, which is a finite resource. The formation of new phosphate rock takes millions of years, so it is considered non-renewable on a human timescale. It is used in fertilizers for crops, animal feed, detergents, metal treatment, flame retardants, certain drugs, food additives et cetera.

- **HELIUM**

  Helium is produced by the decay of radioactive elements in the Earth's crust, a process that takes millions of years. Once released into the atmosphere, helium escapes into space and is lost, making it effectively non-renewable. Helium is used in medical machines cooling, nuclear reactors and cryogenics, welding, semiconductor production and other fields.

It is now crucial to introduce the second major category of resource scarcity: relative scarcity. The next section will define the concept of relative scarcity, explore its significance in shaping the world's political and economic status quo, and provide examples to further illustrate its effects, mirroring the approach taken for absolute scarcity in the previous section.

[47] Diana Bauer et al., "Critical Materials Strategy," *Energy.gov* (Washington DC, US: U.S. Department of Energy, December 2011), https://www.energy.gov/sites/default/files/DOE_CMS2011_FINAL_Full.pdf.

2.3 Relative Scarcity: Too Uneven

When considering the concept of "scarcity", many might instinctively think of it in terms of A.S., as discussed earlier. However, scarcity can be metaphorically portrayed as a two-sided coin. The first, most immediate side is indeed A.S., the simple lack of a resource which fails to meet a higher demand for it: if there is only one cake to distribute among 50 children at a kid's birthday party, and the majority of the guests if not everyone wants a slice, the cake is affected by A.S. There is, very simply put, not enough cake for everyone.

Nonetheless, scarcity has another equally significant face: relative scarcity (for clarity, "R.S" will be used hereafter). Returning to the birthday cake metaphor, imagine now there are 20 cakes, more than enough to satisfy everyone. Despite this sufficient supply, though, the distribution is highly unequal - some guests consume one or more entire cakes by themselves, others get about half a cake, some may receive a couple of slices, while the majority of the kids is given less than one, or even zero. Were one to ask the children with very little or no cake on their plate, they would certainly describe their situation as one of scarcity, despite the overall abundance of cakes. This quite sad image illustrates how a resource can be abundant yet still be rightfully perceived as scarce at the very same time, due to its unequal distribution. This concept is, as it has been mentioned before, R.S.

Oxford Reference defines R.S. as "A condition that exists when a particular resource is in short supply in one or more areas, because of inadequate or disrupted distribution"[48]. R.S. significantly differs from A.S, especially when one considers the two adjectives that properly define the concepts. A.S. is indeed *absolute* from every aspect, whether material or even abstract: it reflects the inherent limited nature of a resource; R.S., on the other hand, is *relative* because it is affected by other assets, such as time, geography, politics, technology and infrastructure availability, socioeconomic disparities, environmental factors and so forth.

1998 Economy Nobel prize-winning economist Dr. Amartya Kumar Sen affirmed in his 1981 superb work *Poverty and Famines: An Essay on Entitlement and Deprivation* that

[48] Oxford Reference, "Relative Scarcity," in *A Dictionary of Environment and Conservation* (Oxford, UK: Oxford University Press, 2013), https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100412697.

*"*Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat*"*[49] (Sen, 1981, p. 1)

Sen's quote, which opens his essay, brilliantly encapsulates the essence of R.S. He shifts the focus, as this section will do, from the mere *availability* of a resource to the crucial issue of *access.* Thus, the discussion now broadens. Alongside R.S., one must always consider that scarcity is not just a matter of quantity but may also be a matter of equity, and justice.

The focus of this dissertation is not inequality, privilege or fairness: the author readily acknowledges that discussion of morality and ethical themes extend beyond the scope of this work. Nevertheless, it is believed that within the international community, these factors can significantly impact global stability. The argument here presented is that the current status quo of R.S. regarding certain resources may indeed affect the very nature of those factors, thereby challenging the decent stability international security currently enjoys[50].

In order to further solidify the concept of R.S. and its influence on the academic framework, one should consider another 2009 Nobel Prize-winning political economist's words, Dr. Elinor C. Ostrom, in her 1990 seminal work *Governing the Commons*: "The years of scarcity are, of course, exactly the years when conflict over territory can erupt"[51] (Ostrom, 1990, p. 175).

The context of the quote is very peculiar, but for this very reason it is believed to be particularly interesting to this dissertation, as it proves one of the many implications R.S. can present at an interpersonal level. Ostrom was referencing Dr. Anthony Davis's PhD thesis for the University of Toronto, his 1984 *You're Your Own Boss: An Economic Anthropology of Small Boat Fishing in Port Lameron Harbour, Southwest, Nova Scotia*. Ostrom's belief in the potential for conflicts during times of scarcity is vividly illustrated in Davis's study. In particular, Davis mentions Port Lameron fishers' aggressive attitude towards neighboring

[49] Amartya Sen, *Poverty and Famines : An Essay on Entitlement and Deprivation* (Oxford, UK: Oxford University Press, 1981), 1, https://edisciplinas.usp.br/pluginfile.php/232228/mod_resource/content/1/Poverty%20and%20Famines%20-%20Sen.pdf.

[50] The responsibility for this statement lies with the author, based on a statistical calculation. According to the Global Conflict Tracker of the Council on Foreign Relations, as of September 2024, approximately 30 countries are engaged in conflict. While this is a significant and tragic figure, it remains relatively modest when considering the total number of countries worldwide. However, as a GPI 2023 report observes, the world's safety is deteriorating by 5% between 2008 and 2023. GPI 2023 Report available at: https://www.visionofhumanity.org/wp-content/uploads/2023/06/GPI-2023-Web.pdf.

[51] Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge, UK: Cambridge University Press, 1990), 175.

colleagues during dry spells, when fish seemed to be less than usual (N.B. a perfect example of *relative* scarcity). He narrates:

> For example, a Port Lameron Harbour fisherman, after setting his longline gear, watched a fisherman from a neighbouring harbour set his gear close to and, on occasion, across his line. Subsequently, the Port Lameron Harbour fisherman contacted the "transgressor" on the citizen band radio to complain about this behavior. Other Port Lameron Harbour fishermen who were "listenin ' in" on the exchange demonstrated support for their compatriot by adding approving remarks once the original conversation had ended. The weight of this support, coupled with the implied threat of action, i.e., "cuttin' off" the offender 's gear, compelled the erring fisherman to offer his apologies. Although often expressed through the action of one man, the property claim to the resource zone can be reaffirmed for all through collective support of an individual action. Knowledge and certainty of this support constitutes a form of tenure security since each fisherman knows that his right of first access will be supported and safeguarded by his compatriots[52] (Davis, 1984, p. 273-274).

This bizarre and possibly quite amusing local story of conflict among fishers in Port Lameron, Nova Scotia, Canada, driven by R.S., may seem peculiar or even unrelated to the broader topic of this thesis. However, this anecdote mirrors effectively larger global dynamics where access to resources can ignite tensions. Just as the local fishers defended their perceived rights to a seemingly at the time limited resource, nations and other actors on the global stage may engage in conflicts over access to critical, yet unevenly distributed, assets. In particular, the last statement from Davis' passage exceptionally demonstrates another possible link between a merely interpersonal or intergroup attitude to a much wider international degree: *support* for each side in a conflict can strengthen one's position of power, regardless of the form that support takes.

Now, with the intention of approximately mirroring the previous section's structure, a simplified yet meaningful list of natural resources that are generally linked to the concept of R.S.:

[52] Anthony Davis, "You're Your Own Boss: An Economic Anthropology of Small Boat Fishing in Port Lameron Harbour, Southwest, Nova Scotia" (Toronto, Canada: University of Toronto, 1984), https://tspace-library-utoronto-ca.translate.goog/bitstream/1807/102099/3/Davis%201984%20-%20You%27re%20your%20own%20boss.pdf?_x_tr_sl=en&_x_tr_tl=it&_x_tr_hl=it&_x_tr_pto=sc.

- **FRESHWATER (IN CERTAIN REGIONS)**

Considered as a renewable resource (hence, not from an A.S. point of view), freshwater is in fact abundant in some regions but scarce in others due to uneven distribution, infrastructure and political boundaries. A glaring example is the Nile River Basin: while the river's overall volume is huge, disputes between Egypt, Sudan and Ethiopia are ongoing over the Grand Ethiopian Renaissance Dam (GERD)[53].

- **AGRICULTURAL LAND**

Despite there being sufficient arable land globally, factors like urbanization, desertification, poor land management and unequal land distribution can make agricultural land R.S. in certain areas of the world. In many African countries, the so called "land grabbing" from foreign investors has led to R.S. of land for local farmers, exacerbating tensions and affecting food production[54].

- **FISHERIES**

The world's oceans are vast. However, overfishing, territorial waters, and exclusive economic zones (EEZs) create relative scarcity of fish stocks in certain regions. Coastal countries with limited access to open waters may struggle to maintain adequate fish supplies. Nations like China, Vietnam and the Philippines clash over fishing areas[55], despite the fish being potentially enough for everyone, if managed collectively (Kenny, 2024).

- **TIMBER**

In spite of forests being sufficiently present on the planet, access to timber is uneven due to deforestation, land ownership issues and regulations. Some regions may face R.S. because of stricter environmental protections or land use changes, whereas others may have more abundant resources. In areas like Africa, where deforestation and illegal harvesting are hugely

[53] Francesca Caruso, "Ethiopia's Grand Renaissance Dam. The Law, History, Politics and Geopolitics behind Africa's Largest Hydropower Project," *Www.jstor.org* (Rome, Italy: Istituto Affari Internazionali, 2022), https://www.jstor.org/stable/resrep45729.
[54] Kai Thaler and Yale University, "Large-Scale Land Acquisitions and Social Conflict in Africa," in *The Journal of Peasant Studies* (Food Sovereignty: a Critical Dialogue, Routledge, 2013), https://www.iss.nl/sites/corporate/files/22_Thaler_2013.pdf.
[55] Miles Kenny, "Territorial Disputes in the South China Sea | History, Maps, China, Vietnam, Taiwan, Philippines, Malaysia, & Facts | Britannica," www.britannica.com (Britannica, February 28, 2024), https://www.britannica.com/topic/territorial-disputes-in-the-South-China-Sea.

widespread, local communities may experience R.S. of timber, which can result in conflict[56] (FAO, 2020, p. 93)

- **ENERGY RESOURCES (NATURAL GAS)**

Energy resources are abundant in some areas but R.S. in others due to infrastructure limitations and geopolitical issues. Regions without natural reserves or with restricted access to pipelines may experience R.S. and overall struggles. Europe's energy challenges following the Russian invasion of Ukraine clearly demonstrated how fragile these balances are[57] (Van Rij, 2024).

- **FRESH AND CLEAN AIR**

Air could be the very last resource one would expect to be in a discussion about R.S. Nonetheless, due to pollution and environmental degradation, among other factors, some areas experience R.S. of fresh, clean air. Urban areas, in particular, with heavy industrial activity or traffic may rightfully complain a much worse air quality compared to rural areas. In cities like Beijing, China – Doha, Qatar – Lahore, Pakistan, the R.S. of clean air has led to severe health issues and increased demand for fresh air[58].

These examples elucidate how assiduously present R.S. is in the daily life of billions of people around the globe. Aiming to solidify its influence on the socioeconomic and political world, said examples have been chosen to adequately convey the idea that both A.S. and R.S. pose a significant threat over the world's correct development, if they are not properly accounted for. Understanding these concepts and their dynamics is absolutely crucial in order to address the alarming threats billions of people have to endure constantly.

In summary, the discussion revolving both A.S. and R.S. in this chapter provides an understanding of how resource constraints impact human life to a greater extent. Building on the conceptual framework provided by this part of the thesis, the following chapter delves deeper into the direct implications of scarce and unevenly distributed natural resources. In

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[56] FAO, *State of the World's Forests 2020. Forestry, Biodiversity and People.* (Rome, Italy: Food & Agriculture Organization of the United Nations, 2020), 93, https://openknowledge.fao.org/server/api/core/bitstreams/dfb12960-44ee-4ddc-95f7-bec93fbb141e/content.

[57] Armida Van Rij, "The EU's Continued Dependency on Russian Gas Could Jeopardize Its Foreign Policy Goals," chathamhouse.org (Chatham House, June 17, 2024), https://www.chathamhouse.org/2024/06/eus-continued-dependency-russian-gas-could-jeopardize-its-foreign-policy-goals.

[58] Health Effects Institute and Institute for Health Metrics and Evaluation, "State of Global Air 2024," *Stateofglobalair.com*, 2024, accessed August 29, 2024, https://www.stateofglobalair.org/sites/default/files/documents/2024-06/soga-2024-report_0.pdf.

particular, chapter three will analyze their impact on *national* security. Scarcity can destabilize nations from within, potentially triggering international conflicts and threats. It is time to explore how.

Chapter Three: Internal Cracks

A nation that can't control its energy sources can't control its future

Barack Obama, *The Audacity of Hope*

3.1 The Fragility Within

While it may sound quite contradictory that a dissertation primarily about *international* security dedicates one of its chapters to a national focus, it is essential to fully grasp that the two levels of analysis are, more than often, deeply intertwined. Aiming for a comprehensive inspection of global processes and threats, one must beforehand consider how a lack of resources and their unequal access affect homeland safety. National resource scarcity frequently acts as precursors to broader regional instability, often leading to border skirmishes, forced migration, international conflicts et cetera. Hence, examining the internal cracks within states provides crucial information about the bigger picture of global stability.

In particular, when natural assets, such as water, energy sources or fertile land are scarce, uneven in distribution or both at the same time within a nation's borders, the consequent pressure can significantly erode its institutions, provoke or exacerbate social unrest and conflict, and lead to economic decline. These key characteristics, are they not monitored and properly addressed, not only endanger that same country's security and well-being, but they also often happen to produce "spill over" effects over neighboring regions and states, giving birth to new or fueling already existing international disputes.

The aim of this chapter, thus, is to appropriately examine the role resource scarcity and the unequal access play in affecting homeland safety. Section 3.2 will supply some fundamental definitions, which will be useful for the whole dissertation. One could argue that concepts like "security" or "national stability" could somehow fall in the subjective realm, as the perception of being safe can vary significantly among different human beings and nations. Nonetheless, it is firmly believed there are certain core elements that constitute the foundation of national safety.

Overall, it is assumed that national security fundamentally relies on different key pillars: solid institutions, economic stability, social cohesion and the absence of foreign interference [59]. In the case of resource scarcity and an unequal access seriously undermining any of these pillars (one or, even worse, two or all three at the same time), internal vulnerabilities are likely to grow, potentially leading to partial or total destabilization of the country. Institutions are the very backbone of a nation's governance and law enforcement. Economic stability allows people to receive the most basic needs and fuels broader development while possibly contrasting crimes at the same time. In addition, social cohesion plays a vital role in maintaining internal peace, as it fosters trust between citizens and rulers, supporting collective resilience in times of hardship and mitigating the risks of civil tensions and wars. Lastly, the absence of foreign interference allows the nation to exploit its assets freely, thus fostering homeland control and enhancing yet again the overall well-being of the population.

3.2 The Heart of Stability

National security, as mentioned in section 3.1, is a multifaceted notion, which relies on countless aspects and different factors. However, if defining *national security* could be rightfully considered a demanding task, it is assumed that defining terms like *security* alone or adjectives like *safe* poses an even more laborious challenge. In spite of its difficulties, the author trusts this passage to be a *sine qua non*, as academic writing often suggests contextualizing key terms to avoid ambiguity, especially if they could be interpreted remarkably differently by different minds. Before diving into the matter, it is essential to state that the following definitions have been chosen due to their relevance and usefulness to this dissertation, yet there are many different perspectives and possibilities one could choose from to illustrate the following concepts[60] (Holmes, 2014).

[59] There are numerous perspectives on what constitutes the foundation of national security. Due to space constraints, not every relevant aspect can be covered in this chapter. The three mentioned factors are considered particularly critical. However, they are by no means exhaustive, and many other factors also play a significant role in shaping national security.

[60] Kim R. Holmes, "What Is National Security?," heritage.org (The Heritage Foundation, October 7, 2014), https://www.heritage.org/military-strength-essays/2015-essays/what-national-security.

Firstly, consider "security" in its broader version, without any adjectives attached to the noun. The Britannica Dictionary describes "security" as "the state of being protected or safe from harm"[61]. This definition is straightforward, concise and universal. However, while its simplicity makes it effective, it might also come off as overly broad or not sufficiently precise, especially when considering how complex the concept could be. To avoid any misinterpretation, it is helpful to analyze this definition in more depth. Firstly, security would be a *state*, which indicates stability or continuity, suggesting that security must endure through an extended period for it to be meaningful. This creates an important distinction between a momentary sense of safety (like narrowly avoiding a car crash) and a more stable condition of long-term protection. The definition's use of *protected* indicates that security often depends on some external source providing protection. The idea of being protected introduces a relational dynamic: one entity (be it a government, individual, an object, a system…) provides security against an external threat or harm, which brings in another important aspect of security, the existence of threats that need to be addressed. Lastly, the word *harm* conveys the idea that the state of security is prevention from any physical, emotional, economic, environmental or any kind of damage, depending on the context. Thus, the Britannica Dictionary's definition could be paraphrased as "The enduring condition of protection from various forms of damage".

Now, consider the adjective "safe", a term present in the definition above, yet deserving of a distinct paragraph. According to Britannica Dictionary, the word "safe" means "not able or likely to be hurt or harmed in any way: not in danger". Hence, the word further broad the definition aforementioned: security is not only given by the characteristic of being safeguarded by something or someone, but also constituted by the *absence* of danger or risk. While protection implies the image of a shield against a threat, safety refers to an already-established status where said threat is intrinsically absent.

It can be argued that, among the many quotes available, the following is particularly fitting for this document: "Safety, like water or air, is a latent attribute that does not present itself as vital until it is lacking"[62] (Park, 2024, p. 128). Apart from the metaphorical link between safety and essential natural resources such as water and air, concepts that align seamlessly with the themes of this dissertation, R.J. Park's 'Slow Burn' captures a key aspect

[61] The Britannica Dictionary, "Security," in *The Britannica Dictionary* (Chicago, US: Encyclopædia Britannica, Inc.), accessed August 29, 2024, https://www.britannica.com/dictionary/security.
[62] R. Jisung Park, *Slow Burn* (Princeton, US: Princeton University Press, 2024), 128.

of the issue: the average human being may not fully appreciate the value of safety until it is compromised. This observation highlights one of the inherent challenges in defining what security truly means (something that could be said for many aspects of life): its importance is often most apparent only when it becomes absent.

3.3 National Security

Having properly analyzed various possible stances on key concepts, it is mandatory to understand how they become relevant to the illustration of *national* security, which is just one of the many forms security can be shaped into. The adjective "national" serves to clarify the scope and domain of the matter: *national* refers to a statal level of analysis, differently from *individual* security or *international* security. Consequently, "national security", as defined by the United Nations, can be explained as "the ability of a state to cater for the protection and defence of its citizenry"[63]. This statement highlights the state's primary *responsibility* to defend its population from both internal and external threats. It being "national" encompasses not only military defense, possibly the most immediate form one would refer to, but also any kind of protection against different risks, ranging from terrorism to cyber-attacks, from economic instability to environmental disasters and so forth. Hence, the state's ability to provide security is linked to its capability to maintain an adequate degree of internal order and uphold the rule of law and, at the same time, shield the population from menaces arising from beyond its borders, such as foreign aggression or cross-border criminality et cetera. This responsibility does not revolve merely around the deployment of military forces or the use of intelligence agencies as it encompasses diplomacy, law enforcement, robust institutions et cetera. In democratic societies this might spark political debates about the extent this role can assume and the legal boundaries it is allowed to push and overstep, especially when conflicting against individual privacy: this, however, is a matter that extends far beyond the scope of this work.

Consequently, if security may be not the first thought in the morning to many people across the globe, governments and states nonetheless dedicate impressive loads of economic

[63] Segun Osisanya, "National Security versus Global Security," United Nations, 2022, https://www.un.org/en/chronicle/article/national-security-versus-global-security.

resources to the matter[64] (Park, 2024, p. 128). According to an April 2024 report by the Stockholm International Peace Research Institute, "World military expenditure increased for the ninth consecutive year in 2023, reaching a total of $2443 billion. […] Military expenditure went up in all five geographical regions, with major spending increases recorded in Europe, Asia and Oceania and the Middle East"[65]. While military expenditure is just one of the components of national security, it remains an interesting indicator of how seriously governments view their security needs.

When it comes to *defense* spending, for example, M. Taylor Fravel, George J. Gilboy and Eric Heginbotham estimate in an article for Texas National Security Review that the United States is by far the most spending country with approx. $1.3 trillion in 2024[66] (to give an idea how of impressive this amount is, Spain's nominal GDP in 2023 was approx. $1.58 trillion[67]). Chinese spending on defense, according to the same article, is calculated to be around $471 billion[68] (Fravel, Gilboy and Heginbotham, 2024). Both countries, with extremely competitive GDPs, clearly allocate these vast amounts strategically, signaling the importance they place on maintaining their military capabilities and overall security infrastructure.

3.4 The Pillars of Society: Institutional Degradation

The current section will delve into the first argument, exploring how the scarcity of resources and/or their unequal distribution may have a noteworthy degrading effect on national institutions, thus lowering that state's ability to provide homeland security to its people.

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[64] R. Jisung Park, *Slow Burn* (Princeton, US: Princeton University Press, 2024), 128.
[65] Nan Tian et al., "Trends in World Military Expenditure, 2023," *Www.sipri.org* (Solna, Sweden: Stockholm International Peace Research Institute, April 2024), https://www.sipri.org/sites/default/files/2024-04/2404_fs_milex_2023.pdf.
[66] M. Taylor Fravel, George J. Gilboy, and Eric Heginbotham, "Estimating China's Defense Spending: How to Get It Wrong (and Right)," *Texas National Security Review* 7, no. 3 (2024): 40–54, https://doi.org/10.26153/tsw/54043.
[67] World Bank Group, "GDP (Current US$) - Spain | Data," data.worldbank.org, 2024, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ES.
[68] M. Taylor Fravel, George J. Gilboy, and Eric Heginbotham, "Estimating China's Defense Spending: How to Get It Wrong (and Right)," *Texas National Security Review* 7, no. 3 (2024): 40–54, https://doi.org/10.26153/tsw/54043.

Encyclopedia Britannica defines "institutions" as

> a set of formal rules (including constitutions), informal norms, or shared understandings that constrain and prescribe political actors' interactions with one another. Institutions are generated and enforced by both state and nonstate actors, such as professional and accreditation bodies"[69] (Gilad, 2024).

This definition captures the complexity of institutions, which, simplistically speaking, are the frameworks political, economic, social, cultural interactions ought to follow within a state. *Sturdy*[70] institutions ensure a functioning legal system, strengthening governance and improving the overall conditions of a nation. Hence, they are absolutely crucial in order to achieve and maintain national security.

One may struggle to imagine how the lack of a natural asset or the fact that its access is uneven have the potential to influence robust institutions, which is a legitimate concern. It is believed the cause-effect relationship in question lies in the ripple effect the two factors have on governance and political stability. In particular, it is argued that the very main point of analysis is encapsulated into a term: *overwhelming*. Resource scarcity and/or the unequal access *overwhelm* critical institutions, causing them to function, as economists would state, *inefficiently*. To clarify this point, consider how overwhelming pressures on key institutions lead to their deterioration through a couple of fictional scenarios which will be briefly introduced.

Consider some local institutions, such as a handful of elementary school in Albuquerque, New Mexico. New Mexico is a southern state, bordering Arizona, Colorado, Texas and Oklahoma. Due to this geographical location, and several other economic and social factors, New Mexico occasionally suffers from droughts[71], alongside its neighbors. The likelihood, severity and frequency of these incidents, according to scientists, are expected to significantly grow in the next decades due to climate change[72]. In one particularly unfortunate

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[69] Sharon Gilad, "Institution | Political Science," Encyclopedia Britannica, December 28, 2015, https://www.britannica.com/topic/institution.

[70] Usually, the qualitative evaluation of institutions is posed through their soundness, their robustness, metaphorically speaking

[71] Michelle Lujan Grisham and Office of the Governor, "50-Year Water Action Plan," *Nm.gov*, 2024, accessed September 4, 2024, https://www.nm.gov/wp-content/uploads/2024/01/New-Mexico-50-Year-WaterAction-Plan.pdf.

[72] Center for Climate and Energy Solutions, "Drought and Climate Change | Center for Climate and Energy Solutions," c2es.org (C2ES, 2024), accessed September 7, 2024, https://www.c2es.org/content/drought-and-climate-change/.

month, a grave dry spell occurs in the city, causing water to become dangerously scarce. Those elementary schools, along with other offices and businesses, are forced to strictly limit their consumption of water or even close entirely, opting for online classes instead. The damages provoked by such sudden scarcity would be utterly remarkable: lower academic performance - mental stress on students, teachers, parents et cetera – lower hygiene and more. However, if four or five elementary schools in Albuquerque operate inefficiently, the damages, though significant, remain primarily local and are generally negligible to the federal government in Washington, D.C. The consequences are serious, but ultimately recoverable.

Now imagine a much more dramatic, newsworthy and catastrophic scenario[73]. Due to some terrible widespread wildfires, the state of Arizona is brought to its knees. The economic, social and human costs are skyrocketing and the whole world is watching in fear and anxiety. In a desperate attempt to salvage the most, together with a comprehensible load of panic and confusion, the Arizonan governor decides to shut down the state, closing the biggest workplaces within its borders. Schools, malls, cinemas, sport events are temporarily shut down. Yet, among these institutions, copper mines are also immediately closed, due to the enormous number of workers they require. The main problem is that the state of Arizona, through its copper industries, provides about 68% of the *total* U.S. copper production, produces about $6.9 *billion* worth of minerals and gives approx. 40.000 Arizonans a job[74]. Hence, what was primarily a local problem rapidly becomes a national issue: copper is essential for electrical wiring in buildings and infrastructure, and a shortage of copper so sudden and so massive could make it incredibly expensive and laborious to maintain and upgrade electrical systems in the whole nation. This, for example, could sharply slow down the development of new schools or renovations across the 50 states, and the Department of Education would possibly struggle to keep up with growing technological demands[75]. On more dangerous grounds, one could forecast that an electrical fault, or a blackout, could help some prisoners escape, higher the chances of rapes, violence, thefts, drug dealing et cetera in darkened streets or due to the malfunctioning of security cameras et cetera. Hence, national

[73] The following hypothetical scenario is a creation of the author and is considered highly unlikely due to the severity of its implications. Nevertheless, it is essential to recall the 2018 wildfire season in California and its profound impact on the North American region. Unlike the scenario presented here, the events in California were a stark reality. For further details, refer to: https://www.fire.ca.gov/incidents/2018.
[74] Resolution Copper, "Arizona & Copper," resolutioncopper.com, accessed September 4, 2024, https://resolutioncopper.com/about-us/arizona-copper/#:~:text=Copper%20is%20a%20cornerstone%20of.
[75] Note: It is important to acknowledge that the U.S. government has demonstrated resilience in similar crises and would likely resolve the situation effectively, as it has done on many occasions in the past. This scenario is entirely hypothetical and is used solely to illustrate the assumptions of this thesis.

security, as defined in the introduction of this passage, ceases to exist: the U.S. ability to protect its citizens would be tremendously endangered.

These scenarios demonstrate how a lack of natural resources can escalate from a local issue into a national security threat. Furthermore, one should see in Arizona's example the problem of uneven distribution of natural assets: this concept could plausibly be linked to the economic notion of *diversification*[76]. Were a country to rely severely on a key natural resource and/or obtaining it totally, primarily or significantly from one producer, the snowball effect of a possible crisis (obviously, depending on other factors) would be perceived.

While these examples take place in the U.S., the impact would be far more devastating in less developed nations like Venezuela, Honduras, or Burundi, where there are fewer economic resources, institutions are considerably weaker and as they are overall more vulnerable to environmental disasters. In fact, as R.J. Park metaphorically captures: "A collision at thirty miles per hour in a Mercedes with seat belts fastened may lead to a few bruises and some insurance paperwork. Colliding at the same velocity in a rickshaw without a helmet may prove fatal, especially if there are no ambulances or hospitals nearby[77]" (Park, 2024, p. 16). This illustrates how vulnerable societies can be to the same crisis, depending on their institutional resilience.

3.5 Trembling Lines: Economic Instability

Resource scarcity and the unequal distribution do not only play a substantial role into weakening national institutions, but they also exert significant influence over a country's economic performance. In particular, it is assumed they exacerbate the economic *instability* of a nation. This section will explore how they do so and why is it relevant to the broad picture of this dissertation.

In order to consider the instability of a country, it is easier to define what the opposite, economic *stability*, properly means. As George Leland Bach captured:

[76] Diversification is an economic strategy that suggests reducing inherent risks by allocating investments across multiple sources, sectors, or markets, rather than relying on a single one. The idea is to spread out risk so that negative performance in one area is offset by better performance in another. This concept is often summarized by the saying: "Don't put all your eggs in one basket."
[77] R. Jisung Park, *Slow Burn* (Princeton, US: Princeton University Press, 2024), 16.

> This subject implies that we want economic stability. "Stability" is a good word, as "rigidity" is a bad one. What do we really want when we say economic stability? Probably the commonest definition is that economic stability means stable, high-level employment and a stable price level"[78] (Bach, 1950, p. 155).

Bach's perspective is fully right: even for someone entirely unfamiliar with economic matters, the concept of "stability" intuitively carries desirability. In this case, this natural inclination is indeed correct: economic stability is advantageous, whereas economic instability is dangerous and must be avoided.

However, as Bach later argues, there are problems with such a simplified definition. It lacks specificity, does not include clear objectives, omits the context of goals, and fails to acknowledge the role of growth in employment and output (Bach, 1950, p. 155-156). After all, as the former Stanford professor argues

> Surely what we want is not stability in the static sense of constancy of employment and out- put, but rather stability in the dynamic sense of growth in output and employment at some optimal rates, coupled (probably) with static stability of some index of prices of goods and services to consumers"[79] (Bach, 1950, p. 155-156)

Thus, economic stability could be interpreted the ability of a nation to sustain an optimal rate of growth though keeping certain indexes of prices under control. This complex goal delves into intricate macroeconomic concepts that are not the primary focus of this dissertation. Therefore, the technical mechanisms underlying such trends will not be exhaustively analyzed here.

At this stage, it is essential to tie this concept to the main subject of this document: how do resource scarcity and the inequality in access hinder economic stability? The following paragraphs will answer the question and provide a concrete example.

Resource scarcity and the unequal distribution pose noteworthy threats to the economic stability of a state in various ways. Firstly, the most immediate link would be that when key natural assets are lacking or unevenly distributed (water, energy sources,

[78] George L. Bach, "Economic Requisites for Economic Stability," *The American Economic Review* 40, no. 2 (1950): 155, https://www.jstor.org/stable/1818036.
[79] Ibid.

minerals…), production costs rise, leading to increased prices for goods and services: essentially, what economists call *inflation*[80].

Indeed, as one of the most immediate and basic economic notions, the "price" of something is given by the supply and demand law: if a product is highly requested, as are vital national resources, yet is *fundamentally* scarce, its price is generally high. Diamonds, for example, are considerably expensive partly because of their rarity: if diamonds were not scarce nor difficult to find and extract, their price would be much lower. Furthermore, if certain goods are not *fundamentally* scarce, as in they are usually abundant, but they *become* scarce for whatever reason, it is not absurd at all to expect their prices to grow. This belief is simply driven by a decreasing shift in the supply curve which exacerbates the increase of the costs.

Hence, inflation occurs "when there is a broad increase in the prices of goods and services, not just of individual items"[81]. Such general increment is the reason why economists state that inflation reduces the value of currency: at a significant inflation level, one should expect their salary to provide fewer goods, though remaining equal, as the majority of goods and services become more expensive.

This overly simplistic approach is enough to capture the center issue that is of interest: the economic performance of a country does have profound consequences which may be difficult to grasp had one not thoroughly studied the subject. However, it has also significant and as damaging effects in the everyday life of people. The latter are the primary focus of this section, as they are believed to put a substantial amount of pressure on homeland safety.

In fact, in "Inflation and the Poor", an article published by Ohio State University Press, Professor William R. Easterly of NYU and former Federal Reserve System Vice president Stanley Fischer prove that inflation generally hits hardest the poor people:

> This paper presents evidence that supports the view that inflation makes the poor worse off. The primary evidence comes from the answers to an international poll of 31,869 respondents in 38 countries. These show that the disadvantaged on a number of dimensions the poor, the uneducated, the unskilled (blue-collar) worker are relatively more likely to mention inflation

[80] Biagio Bossone et al., "Inflation and the Ecological Transition: A European Perspective (Part II)," World Bank Blogs (World Bank, September 19, 2022), accessed August 28, 2024, https://blogs.worldbank.org/en/allaboutfinance/inflation-and-ecological-transition-european-perspective-part-ii.
[81] European Central Bank, "What Is Inflation?," www.ecb.europa.eu (ECB, 2024), accessed August 27, 2024, https://www.ecb.europa.eu/ecb-and-you/explainers/tell-me-more/html/what_is_inflation.en.html.

> as a top concern than the advantaged on these dimensions. Each dimension is significant when controlling for the others, suggesting that the different components of being disadvantaged have independent effects on attitudes to inflation. We also examine the impact of changes in inflation on direct measures of poverty and relate them to inflation. We found that high inflation tended to lower the share of the bottom quintile and the real minimum wage, while tending to increase poverty. Similar results on the direct effects of inflation on the per capita incomes of the poor have been found recently by Romer and Romer (1998) and Agenor (1998). This paper presents evidence from surveying the poor themselves that they suffer more from inflation than the rich."[82] (Easterly and Fischer, 2001, p. 177-178)

Easterly and Fischer's paper empirically confirms that low-income households and less wealthy individuals have a noteworthy disadvantage when it comes to inflation. This position of vulnerability is due to the poor's tendency to hold their wealth in cash (which, as we have stated earlier, loses its value during inflation), to the limited access the poor have to inflation-protected assets, their inadequate or minimal possibility to diversify their portfolios, the struggle for state-provided support to keep up with high inflation et cetera. As it is argued here, among the noticeable number of economic-instability-induced challenges, there are three notable risks that an unstable economy generates against the national security of a state.

Firstly, economic instability, fueled by inflation and resource shortages, can lead to widespread unemployment and lower wages, as it is assumed business would strive for cutting costs in a crisis or reducing their output. The consequence, in this case, is that society will register an increment in poverty, ergo a decrease in the quality and quantity of public services. One way the government can pay for public services is through taxes, and the fewer workers there are, the lower the statal income through taxes. One could expect this would cause a deterioration of public institutions and services, such as police departments, fire stations, medical assistance et cetera, alongside all its negative effects for public safety.

Moreover, widespread poverty often correlates to higher crime rates, such as theft, organized crime, violent civil unrest and so forth. Thus, the relationship between a faulty economy and national security is primarily an indirect one, product of various spillover effects and cause-effect chain reactions; however, it is clear that this argument still provides one of the most important examples on how the two sectors are deeply intertwined. Rational

[82] William Easterly and Stanley Fischer, "Inflation and the Poor," *Journal of Money, Credit and Banking* 33, no. 2 (May 2001): 160–78, https://doi.org/10.2307/2673879.

Choice Theorists would argue that human beings weigh costs and benefits, as we constantly seek to maximize our utility[83]: according to this perspective, so do criminals, and the worse their living conditions, the lower the threshold they may establish to commit crimes[84].

As for the third impact, due to its particular relevance to this research, a new section will begin. The attention will be dedicated to foreign interference, a matter of national security but peculiarly close to the main standpoint of the following chapter. Hence, it will be used as a bridge to slowly but steadily elevate the level of focus from a national to an international perspective.

3.6 Unauthorized Entry: Foreign Intrusion

Nations which undergo extended periods of particularly severe economic turmoil may become targets for foreign interference or grave exploitation by other states looking for advantages and improvements to their own situation. When inflation persists and the poor are struggling or utterly unable to sustain their basic standards of living, social unrest is more prone to erupt[85] (Pratt and Cullen, 2005, p. 411,431). The dangerous mix of rising costs, stagnant or decreasing wages, higher unemployment rate and reduced purchasing power fuels collective discontent, particularly so when it aggravates inequality among different castes. People may engage in protests, strikes, or even riots according to the severity of the situation and the people's propensity to erupt. What makes matters worse is that usually governments can fight inflation through tightening monetary policies, which, though sometimes necessary, are not usually appreciated by the public opinion. Foreign governments may take advantage of such weaknesses by covert means, economic statecraft, diplomatic influence et cetera: external powers could be willing to offer financial aid[86] or investments under particularly

[83] S.M. Amadae, "Rational Choice Theory," www.britannica.com, 2023, accessed September 14, 2024, https://www.britannica.com/money/rational-choice-theory.
[84] This belief stems from what has been said about the Rational Choice Theory. A simple but effective saying that encapsulates the statement is "having nothing to lose".
[85] Travis C. Pratt and Francis T. Cullen, "Assessing Macro-Level Predictors and Theories of Crime: A Meta-Analysis," *Crime and Justice* 32 (2005): 411, 431, http://www.jstor.org/stable/3488363.
[86] China is considered by many experts to have carried a strategy of such nature in Africa, according to the Journal of the Washington Institute of China Studies, review of *The Dragon's Gift: The Real Story of China in Africa*, by Deborah Brautigam, 2009, https://www.bpastudies.org/index.php/bpastudies/article/download/130/242.

favorable conditions to themselves[87]. For instance, external actors might gain such an influence that they could dictate internal policies, such as trade regulations or reforms, weaking the targeted country's sovereignty (what is traditionally called either "debt-trap diplomacy"[88] or "economic imperialism"[89]). Other actors may also manage to exert significant influence on a country's national election, infiltrating through cyber activities to manipulate political outcomes in their favor, finance media campaigns and produce misinformation about a disliked candidate et cetera[90] (Bradshaw and Howard, 2018, p. 24,29). Lastly, resource-rich but financially trembling nations may be forced to enter into unfair contracts or sell their key natural assets at undervalued prices to external buyers. It becomes evident that a sturdy resource-management system is imperative during a period of economic disarray. The following lines will explore the Venezuelan case study to prove these arguments to a greater extent.

3.7 The Crude Collapse

Consider Venezuela in the 2010s, whose situation encompasses the three arguments posed before. As it will be explained in a few lines, Venezuela's national security is and has been under threat for years due to its utterly catastrophic economic status. Venezuela is an emblematic case study of a resource-rich country whose political and socioeconomic fragility has condemned to decay[91]. The "ironic" side of the story is that Venezuela's privileged position was its curse. In 1914, in fact, an enormous amount of crude oil was discovered and

[87] This capability is usually addressed as "leverage". In negotiation, leverage refers to the influence one party holds to sway the other toward their desired outcome. It stems from the ability to either offer advantages or inflict disadvantages on the opposing side.
[88] Debt-trap diplomacy occurs when a creditor country lends excessive amounts to a borrowing nation, intending to gain political or economic control once the borrower is unable to repay the debt. These loans often come with undisclosed terms and are used to fund projects involving contractors and materials from the creditor country, further benefiting the lender at the borrower's expense. In 2018 at the time U.S. Vice-President Mike Pence argued that China had been plotting a "debt-trap diplomacy" over smaller countries. Whether Pence's statement is valid, it is still up to debate.
[89] Economic imperialism refers to the practice where a powerful country extends its influence and control over the economy of another, typically weaker, nation. This is often achieved through economic means such as trade, investment, or lending practices, where the dominant country shapes the policies or economic activities of the dependent nation to benefit its own interests.
[90] Samantha Bradshaw and Philip N. Howard, "The Global Organization of Social Media Disinformation Campaigns," *Journal of International Affairs* 71, no. 1.5 (2018): 24, 29, https://www.jstor.org/stable/26508115.
[91] Berkeley Economic Review Staff, "Venezuela's Resource Curse," econreview.studentorg.berkeley.edu (BER, October 15, 2019), accessed September 15, 2024, https://econreview.studentorg.berkeley.edu/venezuelas-resource-curse/.

drilled in the Mene Grande field on the eastern shores of Lake Maracaibo[92]. The oil was in such abundance that Venezuela has still nowadays "the largest amount of oil reserves in the world with more than 300 billion barrels in reserve"[93]. However, as Anshool Deshmukh of Visual Capitalist writes:

> A country with large amounts of reserves does not always translate to strong production numbers for petroleum, oil, and by-products. Oil reserves simply serve as an estimate of the amount of economically recoverable crude oil in a particular region. To qualify, these reserves must have the potential of being extracted under current technological constraints"[94]. (Deshmukh, 2021)

Unfortunately for Venezuela, its oil production has collapsed by more than 75% over just 5/6 years, from about 2.6 million barrels per day in 2015 to about 0.6 in 2021[95]. Several factors contributed to this plunge, such as emigration, American sanctions, aging infrastructure, price volatility, loss of expertise et cetera. Among these, hyperinflation and a particularly high economic instability further exacerbated Venezuela's inability to efficiently exploit its resources at manageable costs.

The Venezuelan economic instability, regardless of its remarkable and favorable profusion of important natural assets, contributed greatly to worsening its national safety. As mentioned earlier, this peculiar case study clusters all the three arguments: that economic instability provides a collapse of public institutions, an increase in crime and social unrest and foreign interference and exploitation.

Firstly, Venezuela's democratic institutions "have been deteriorating since 1999, but conditions have grown sharply worse in recent years"[96] (Freedom House, 2024). Furthermore, the report continues: "Although the country's economy has returned to growth after years of recession, a severe, politically driven humanitarian crisis continues to cause

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[92] Felix Rossi-Guerrero, "The Transition from Private to Public Control in the Venezuelan Petroleum Industry," *Vanderbilt Journal of Transnational Law* 9, no. 3 (1976): 475, https://scholarship.law.vanderbilt.edu/vjtl/vol9/iss3/2/.
[93] World Population Review, "Oil Reserves by Country," worldpopulationreview.com, 2024, https://worldpopulationreview.com/country-rankings/oil-reserves-by-country.
[94] Anshool Deshmukh, "Which Countries Have the World's Largest Proven Oil Reserves?," Visual Capitalist, June 7, 2021, https://www.visualcapitalist.com/ranking-the-countries-with-the-largest-proven-global-oil-reserves-in-the-world/.
[95] Robert Rapier, "Inside Venezuela's Contradictory Oil Industry," forbes.org (Forbes, February 21, 2023), https://www.forbes.com/sites/rrapier/2023/02/21/inside-venezuelas-contradictory-oil-industry/.
[96] Freedom House, "Venezuela: Country Profile,", 2024, accessed September 10, 2024, https://freedomhouse.org/country/venezuela.

hardship and stimulate mass emigration"[97] (Freedom House, 2024). The current situation under Venezuela's autocratic leader, Nicolás Maduro, is worsening quickly: some Atlantic Council experts have published a series of takes on the topic in September 2024, highlighting different standpoints and beliefs. In particular, Kevin Whitaker's *Democracies should use Venezuela's military and private sector to squeeze Maduro.* He argues that democracies should "explain to the Venezuelan generals that their responsibilities should be to support and defend Venezuela's institutions, not the interests of the repressive Maduro regime"[98] (Whitaker, 2024). Yet, a Reuters report found that Maduro has filled the Special Action Force of Venezuela's National Police with convicted criminals[99] (Kinosian and Berwick, 2020). Police violence and murder of dissidents is at a worrying level in Venezuela, as the same report argues, so much that Nora Echavez, a former chief prosecutor in the state of Miranda, affirmed that "They hire people who aren't afraid to commit crimes, to enter a home without a warrant and kill. A criminal does these things easily because they've already done them before"[100] (Echavez, 2020). This climate of tension and aggression does not help the country's homeland safety: if anything, it fuels insecurity, crime and rebellion, as the next paragraph will illustrate.

Secondly, Venezuela's weak and corrupted institutions are not the only dramatic side to its tragic status: their most immediate and atrocious effect is a dreadfully high crime rate and social unrest. As the "foreign travel advice" page of the United Kingdom Government website suggests

> Venezuela has one of the highest murder rates in the world. Armed robbery, mugging, carjacking and burglary are all very common and often accompanied by extreme violence. Do not resist an attacker. Remain alert and avoid displaying electronics or valuables while on the street or in a vehicle"[101] (UK Government, 2024).

Criminal activities within the borders are widespread, and high-ranking officials "are reportedly collaborating with criminal organizations to carry out various illegal operations,

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[97] Ibidem
[98] Kevin Whitaker, "Democracies Should Use Venezuela's Military and Private Sector to Squeeze Maduro," in *Experts React: Maduro Has Forced Venezuela's Opposition Leader into Exile. What Should the World Do Now?* (Washington DC, US: Atlantic Council, 2024), https://www.atlanticcouncil.org/blogs/new-atlanticist/experts-react/experts-react-maduro-has-forced-venezuelas-opposition-leader-into-exile-what-should-the-world-do-now/.
[99] Sarah Kinosian and Angus Berwick, "Convicted Criminals Are among Special Police Terrorizing Venezuela," Reuters, February 19, 2020, accessed September 9, 2024, https://www.reuters.com/investigates/special-report/venezuela-violence-police-faes/.
[100] Ibid.
[101] United Kingdom Government, "Safety and Security - Venezuela Travel Advice," gov.uk (Government of UK, 2024), https://www.gov.uk/foreign-travel-advice/venezuela/safety-and-security.

including drug trafficking and money laundering[102]. It should not take one by surprise to discover that Venezuela's 2024 Global Peace Index was a 2.821, placing it at 142nd out of 163 examined states[103]. Social unrest exploded in late July 2024 after Maduro's seemingly fraudulent reelection against Edmundo González: American NGO Human Rights Watch explored the protests against Maduro and published an article in September 2024 describing Venezuela's situation of police abuses, arbitrary detention and harassment of critics. In particular, it states that

> According to Venezuelan authorities, they arrested over 2,400 people in connection with protests. The local pro bono group Foro Penal recorded over 1,580 "political prisoners" who have been arrested since July 29, including 114 children. Prosecutors have charged hundreds with sometimes broadly defined crimes carrying harsh sentences, such as "incitement to hatred," "resistance to authority" and "terrorism"[104]. (Human Rights Watch, 2024)

Lastly, Venezuela's downfall is fueled by foreign interference and exploitation. "The fabulous Five", (Russia, China, Iran, Cuba and Turkey, as nicknamed by a Center for Strategic and International Studies report) have been particularly keen on supporting Maduro's regime, to increase their influence in Northern Latin America[105], through a series of channels and strategic plans. However, their moves and aids are obviously carefully granted to obtain something in return, which may endanger Venezuela's future and freedom of move, politically speaking in particular[106]. As the report summarizes[107]:

1. Russia keeps acting as a last resort for Venezuela, helping the nation circumventing oil sanctions, fueling misinformation and providing miliary supplies to the Maduro regime. The Venezuelan army uses a noteworthy amount of Russian military

[102] Global Organized Crime Index, "GLOBAL ORGANIZED CRIME INDEX," Ocindex.net, 2024, accessed September 8, 2024, https://ocindex.net/assets/downloads/2023/english/ocindex_profile_venezuela_2023.pdf.
[103] Institute for Economics & Peace, "Global Peace Index 2024. Identifying and Measuring the Factors That Drive Peace," *Visionofhumanity.org* (Sydney, Australia: IEP, 2024), accessed September 7, 2024, https://www.visionofhumanity.org/wp-content/uploads/2024/06/GPI-2024-web.pdf.
[104] Human Rights Watch, "Venezuela: Brutal Crackdown on Protesters, Voters," hrw.org (HRW, September 4, 2024), accessed September 9, 2024, https://www.hrw.org/news/2024/09/04/venezuela-brutal-crackdown-protesters-voters.
[105] Moises Rendon and Claudia Fernandez, "The Fabulous Five: How Foreign Actors Prop up the Maduro Regime in Venezuela," www.csis.org (Center for Strategic and International Studies - CSIS, October 19, 2020), https://www.csis.org/analysis/fabulous-five-how-foreign-actors-prop-maduro-regime-venezuela.
[106] The saying "There Ain't No Such Thing as a Free Lunch", often mentioned in diplomacy and political relations illustrates this mechanism of latent coercion.
[107] Moises Rendon and Claudia Fernandez, "The Fabulous Five: How Foreign Actors Prop up the Maduro Regime in Venezuela," www.csis.org (Center for Strategic and International Studies - CSIS, October 19, 2020), https://www.csis.org/analysis/fabulous-five-how-foreign-actors-prop-maduro-regime-venezuela.

technology[108]: as of 2019 Venezuela still owes Russia at least $10 billion for fighter jets purchased between 2009 and 2014[109], according to Roblin (2019). Furthermore, as an August 2024 Wilson Center's blog post mentions:

> Concerns about Russian interference in Venezuela are not new. Still, they have grown recently, especially after reports of members of Venezuelan security forces displaying Wagner Group insignia during protests. Ukrainian president Volodymyr Zelensky even referred to these developments as part of Russia's "usual strategy of sowing chaos around the world"[110] (Levaggi and Rouvinski, 2024)

2. China's total loans to Venezuela are the biggest across all South America: it is estimated the Red Dragon provided 17 different loans to Venezuela for a total amount of approx. $59 billion[111] up to 2014. These loans stopped in 2015 as China's fear of U.S. secondary sanctions grew and many experts believe the Asian colossus "did not achieve what it wanted"[112] (Rosales and Shaw, 2023). However, in September 2023 China upgraded Venezuela's status to an "all-weather strategic partnership"[113], a title reserved for special nations such as Pakistan, Belarus, Hungary et cetera.
3. Iran and Venezuela have had particularly close ties due to their anti-American stances and their attempts to circumvent U.S. sanctions. Iran has been looking to strengthen its influence on Venezuela, whose geographical position could be particularly beneficial due to its proximity with North America. An article on "The Hill" by Former Florida Governor Jeb Bush and non-resident senior adviser at CSIS Norman Roule argues that Iran has been trying to create with Venezuela what the USSR had plotted with Cuba[114] (Bush and Roule, 2024).

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[108] Stockholm International Peace Research Institute, "Arms Transfer Database," armstransfers.sipri.org (SIPRI, 2024), https://armstransfers.sipri.org/ArmsTransfer/TransferData/transferResults?logic=on.
[109] Sebastien Roblin, "Venezuela Borrowed $10 Billion from Russia to Pay for Jet Fighters and Tanks. It Can't Pay It Back.," nationalinterest.org (The National Interest, July 27, 2019), https://nationalinterest.org/blog/buzz/venezuela-borrowed-10-billion-russia-pay-jet-fighters-and-tanks-it-cant-pay-it-back-69467.
[110] Ariel González Levaggi, "In Venezuela, Russia Answers US Support for Ukraine with 'Symbolic Reciprocity,'" wilsoncenter.org (Wilson Center, 2024), https://www.wilsoncenter.org/blog-post/venezuela-russia-answers-us-support-ukraine-symbolic-reciprocity.
[111] Rebecca Ray and Margaret Myers, "China-Latin America Finance Database," thedialogue.org (The Dialogue. Leadership for the Americas, 2024), https://www.thedialogue.org/map_list/.
[112] Antulio Rosales and Kelsey Shaw, "Chinese Finance in Venezuela: A Non-Interventionist Lender's Trap," thepeoplesmap.net (Global China Pulse, March 3, 2023), https://thepeoplesmap.net/globalchinapulse/chinese-finance-in-venezuela-a-non-interventionist-lenders-trap/.
[113] Xiang Hayou, "What 'Partnerships' Does China Have?," interpret.csis.org (Study Times, October 20, 2023), https://interpret.csis.org/translations/what-partnerships-does-china-have/.
[114] Jeb Bush and Norman Roule, "Ran's Foothold in Venezuela Requires a Tougher Response," *The Hill*, 2024, accessed September 2, 2024, https://thehill.com/opinion/national-security/4712553-irans-foothold-in-venezuela-requires-a-tougher-response/.

4. Cuba has had tremendous influence over Venezuela since the late 1990s, when at the time presidents Fidel Castro Ruiz and Hugo Chávez Frías shared a particularly close personal bond, according to Brian Fonseca and John Polga-Hecimovich (2021) for think tank Wilson Center[115]. Their mutual admiration was so strong that Chávez stated on March 8th, 2000: "Cuba es el mar de la felicidad. Hacia allá va Venezuela"[116] ("Cuba is the sea of happiness. There Venezuela goes"). Chavez's death in 2013 and, especially, the Venezuelan economic instability and political crisis beginning in 2014 cooled down their relations, as it highlighted the mutual dangerous interdependence among both nations[117](Piccone and Trinkunas, 2014). However, Maduro still relies heavily on Cuban personnel to strengthen his regime and sustain his ideology, Cuban intelligence systems for national security against coup plots and he gains advice on fighting social unrest and rebels[118] (Romero, 2010).
5. Turkey's position of support to Maduro's regime is clear, as Turkish president Recep Tayyip Erdoğan told Maduro on the phone "Maduro brother, stand tall, Turkey stands with you!" in late January 2019[119], "immediately after more than fifty nations recognized the opposition leader Juan Guaidó as Venezuela's interim president"[120] (Jones, 2019). However, Turkey has also had decently amicable relations with the United States of America, being a NATO member since 1952, hence playing the usual ambiguous role Erdoğan is notorious for[121]. Differently from the other cases aforementioned, Turkey and Venezuela never really shared a peculiar historical affinity; yet, from 2016, the two countries have solidified their diplomatic

[115] Brian Fonseca and John Polga-Hecimovich, "Venezuela and Cuba: The Ties That Bind," *Wilsoncenter.org* (Washington DC, US: Wilson Center, January 2020), https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Venezuela-Cuba%20FINAL.pdf.
[116] Ibid.
[117] Ted Piccone and Harold Trinkunas, "The Cuba-Venezuela Alliance: The Beginning of the End?," *Brookings.edu* (Washington DC, US: Latin America Initiative Foreign Policy at Brookings, June 2014), https://www.brookings.edu/wp-content/uploads/2016/06/CubaVenezuela-Alliance-Piccone-Trinkunas.pdf.
[118] Carlos A. Romero, "South-South Cooperation: A Challenge to the Aid System? The Reality of Aid the Reality of Aid," *Realityofaid.org* (Quezon City, Philippines: IBON Books, 2010), https://www.realityofaid.org/wp-content/uploads/2013/02/ROA-SSDC-Special-ReportEnglish.pdf.
[119] Dorian Jones, "Turkey's Erdogan Stands Firm with Venezuela's Maduro," voanews.com (Voice of America (VOA News), January 25, 2019), https://www.voanews.com/a/turkey-s-erdogan-stands-firm-with-venezuela-s-maduro/4758691.html.
[120] Imdat Oner, "Turkey and Venezuela: An Alliance of Convenience," *Wilsoncenter.org* (Washington DC, US: Wilson Center, March 2020), https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/LAP_200317_ven%20turkey_v2%20%281%29.pdf.
[121] On the Turkish-American relations, Steven A. Cook's "*Neither Friend nor Foe: the Future of U.S.-Turkey relations*", published by the Council of Foreign Relations in 2018, offers an insightful analysis of geopolitical, military and economic factors between the two countries. The PDF version is available at https://cdn.cfr.org/sites/default/files/report_pdf/CSR82_Cook_Turkey_0.pdf?_gl=1*1xx6fov*_gcl_au*MTc2MDIwNzc3Mi4xNzI2NTc3NDk5*_ga*MTQzNzczMjc5OS4xNzI2NTc3NDk5*_ga_24W5E70YKH*MTcyNjY1NTA2Ni41LjEuMTcyNjY1NTE4Ni42MC4wLjA.

interactions. In particular, Turkey has given Venezuela its financial support in the latter's illicit gold trades to cunningly circumvent U.S. sanctions[122] (Pons, 2018).

Hence, Venezuela's case study delivers a thorough illustration of the three arguments argued to give rise to threats to national integrity and homeland safety. As displayed in this section, Venezuela's economic instability drives its institutional weaknesses, its particularly substantial crime rate and its suitability to foreign interference and international over-reliance. These three factors magnify Venezuela's abominable havoc to a greater extent, considerably worsening its national security. The effects of such condition are primarily national, though they have at the same time far-reaching international consequences. The latter will be the focus of the third and final chapter of this dissertation. Venezuela's situation will not be further explained, yet its relevance is still fundamental to the core of the document: the interconnectedness of national security's risks and their effects on regional and global stability will be now deeply analyzed in greater detail, as the focus will shift to the international picture.

[122] Corina Pons, "Turkey's Erdogan Slams Venezuela Sanctions, Maduro Defends Gold Exports," *Reuters*, December 4, 2018, https://www.reuters.com/article/world/turkeys-erdogan-slams-venezuela-sanctions-maduro-defends-gold-exports-idUSKBN1O303V/.

Chapter Four: Tides of Tension

There is no instance of a country having benefited from prolonged warfare

Sun Tzu, *The Art of War*

4.1 The Global Growth

As of the writing of this chapter, there are currently 8.1 billion people on the planet Earth[123]. Today alone about 300,000 new lives began, whereas roughly 140,000 ended[124]. By late August 2024, the world's population has grown by about 47 *million* people[125] this year alone.

To put the data into perspective, the metropolitan area of Tokyo, Japan (the world's most populated city as of 2024) contains 37 million people approx.[126]. This means that, two thirds into 2024, the world's population has increased significantly more than one additional Tokyo's metropolitan area. For those needing a more vivid image, consider searching for an aerial view of Tokyo, with its seemingly endless sprawl of skyscrapers. That colossal concrete jungle is home to significantly fewer people than the net difference between births and deceases so far this year.

Other stark perspectives: the net population growth this year outstrips Australia, New Zealand, Norway, Ireland, Latvia, Estonia and Iceland's populations *combined*[127]. In just eight months the world's population has grown more than the total populations of California and the state of New York put together, slightly more than Canada's and about as many as Spain's or Argentina's[128].

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[123] Worldometer, "World Population Clock," worldometers.info, 2024, accessed August 30, 2024, https://www.worldometers.info/world-population/
[124] Ibid.
[125] Ibid.
[126] Department of Economic and Social Affairs, UN, *World Urbanization Prospects: The 2018 Revision* (New York City, US: United Nations, 2019), 75, https://population.un.org/wup/Publications/Files/WUP2018-Report.pdf.
[127] United Nations, "World Population Prospects," UN, 2024, https://population.un.org/wpp/.
[128] Ibid.

Had one created a new country on January 1st, 2024, and counted as its population the positive difference between births and deaths this year, their nation would be overtaking Algeria for the 33rd place on the world's population rankings[129]. Had they instead chosen as their population the deliveries only, the country would have about 88.4 million people, ranking 18th worldwide, placing between Iran (91.7 million) and Turkey (87.5 million)[130].

Furthermore, the growth rate is equally staggering, arguably even more so. Despite the latest United Nations' forecasts acknowledging that more than 60 countries and territories have already peaked in population (including China, Russia, Thailand, Italy et cetera) and that the global fertility rate – currently at 2,25 births per woman – has dropped by one child per woman since 1990, the world's population is still expected to grow steadily for the next 50 to 60 years, peaking around 2084 at an estimated 10.2 billion people[131]. Africa and Asia will be the two biggest-growing continents; on the other hand, European fertility rates are currently below the two children per woman mark[132], better known as the "population replacement level", a rate adequate in order to keep the population growing in a designated area (Scott, 2022).

A quick numerical analysis of the current global situation makes it clear why climate change is, and will continue to be, an extremely pressing issue, especially in the context of such significant increase in human beings. More precisely, what matters regarding the population increase is the fact that, according to pure mathematical principles, the more human beings there are, the more it reduces the per-capita availability of a resource.

However, this long and possibly overwhelming introduction to chapter 4 has not been thought to alarm, let alone scare, the reader: the world has successfully navigated more dramatic scenarios in the past, hence why many experts, perhaps surprisingly, hold a degree of optimism about our future (Pinker, 2018; Park, 2024). However, others have raised serious and legitimate concerns regarding the current trajectory (Diamond, 2005; Klein, 2014). Brilliant minds from across the planet have sought answers to these pressing questions, reminding us

[129] Ibid.
[130] Ibid.
[131] All the data in this paragraph was taken from Denise Chow, Joe Murphy, and Jiachuan Wu, "Five Graphics That Show What the New U.N. Population Report Tells Us about the Future," *nbcnews.com* (NBC News, July 11, 2024), accessed September 11, 2024, *https://www.nbcnews.com/data-graphics/graphics-2024-united-nations-world-population-prospects-report-data-rcna160017*.
[132] Sophia Scott, "Public Health and Overpopulation: The United Nations Takes Action," hir.harvard.edu (Harvard International Review, June 20, 2022), https://hir.harvard.edu/public-health-and-overpopulation/#:~:text=In%20the%20last%20five%20decades.

once again of the indispensable role academic debate plays in driving progress and fostering continuous improvements.

4.2 Environmental Scarcity

"Environmental scarcity" is an expression frequently chosen by analysts and experts of the field in order to describe the convergence of three deeply intertwined factors: environmental change, population growth and the unequal social distribution of resources (Homer-Dixon, 1994).

While the relevance of population growth and the unequal social distribution of resources to this discussion has already been explored, the notion of environmental change remains to be addressed. Environmental change, due to its intricate nature, demands a clear and focused definition, in order to avoid confusion or overextension in this thesis. Thus, as Dr. Thomas Homer-Dixon aptly states: "The commonly used term 'environmental change' refers to a human-induced decline in the quantity or quality of a renewable resource that occurs faster than it is renewed by natural processes"[133] (Homer-Dixon, 1994).

By implicitly recognizing two kinds of resources, renewable and non-renewable, environmental change as intended by Dr. Homer-Dixon focuses on the former type, underlining the discrepancy between the artificial variation of quantity and quality of a renewable asset and its natural replenishment processes. This perspective firmly highlights the detrimental influence of human activities on the environment when their effects occur faster than the renewal of the required assets.

Therefore, environmental scarcity is indeed an anthropogenic issue, resolutely driven by the depletion of resources and population growth, potentially exacerbated by a socioeconomic disparity in access. The complex condition of environmental scarcity, if and when left unaccounted for, poses a significant threat to global security by increasing the likelihood of international conflicts.

For the purpose of proving such a statement, the next several sections will explore different scenarios, maintaining their focus on an *international* perspective. Each section will

[133] Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 19, no. 1 (1994): 5–40, https://doi.org/10.2307/2539147.

explore its own topic, its relevance to the overall thesis and employ a peculiar case study to additionally strengthen this dissertation's point. The great majority of human beings are affected worldwide by these phenomena, which increasingly underscores the fundamental need for more efficient global cooperation. In 1623 British poet John Donne wrote "No Man Is an Island", referring to the unavoidable interpersonal ties among humankind. It is believed, on some level, the same could be said for nations.

4.3 To Make Matters Worse: The Human Burden of Scarcity

Until now the resource scarcity and its unequal distribution have been considered two merely abstract concepts, which have been properly defined and explained but primarily in theory. This section will, instead, focus on the practical implications that the two factors provoke, mainly analyzing the consequences on humankind.

Firstly, however, it is necessary to state that resource scarcity and the inequality in access do not always lead to catastrophe. While it may sound illogical, given the dissertation focuses on the contrary of this statement, a pertinent example will explain more accurately. Resource scarcity could indeed be seen as an incentive to improve one's technological status, fund R&D, take high-risk high-reward decisions and strive for colossal improvements, granted a country can meet the economic, social, cultural, political and know-how requirements.

In order to prove this point, the Netherlands example will be quickly considered. The Netherlands are a country located in northwestern Europe, which, as their English name suggests, are famously flat, with many sources of water (lakes, rivers and canals). The nation is generally considered rather small, measuring totally about 41.500 km^2, 6.500 km^2 of which consist of polders (land reclaimed from the sea)[134], and slightly less than 18 million people[135]. The Netherlands' soil is particularly fertile[136] (Stoorvogel, 2009, p. 8) despite the usual climate posing some challenges for agriculture: chiefly, the limited sunlight, the relatively high humidity and the cool temperatures may hinder and slow down crop growth. At the same time

[134] Michael J Wintle and Marcus Willem Heslinga, "Netherlands | Facts, Destinations, People, and Culture," in *Encyclopædia Britannica* (Chicago, US: Britannica, May 3, 2019), https://www.britannica.com/place/Netherlands.
[135] Ibid.
[136] J.J. Stoorvogel, "Adapting Dutch Agriculture to Climate Change," *WUR* (Wageningen, The Netherlands: Wageningen UR, 2009), 8 https://edepot.wur.nl/13379.

the Dutch ground is generally quite rich in resources, yet its intensive use may alter this position of strength: for many decades farmers, biologists, scientists, engineers et cetera have pondered how to trump such biological disadvantages and risks[137]. Furthermore, having one of the world's densest population of livestock[138], the surrounding environment faces noteworthy quality challenges. Despite this natural handicap position, the Dutch have successfully managed to make the most of it thanks to an extremely efficient and significantly widespread system of greenhouses, today as big as the city of Paris overall[139] (Conway, 2023) where "precision farming" has absolutely annihilated the natural drawbacks of the nation, making it the second food-exporter in the world, despite their relatively small size (only lacking to the United States of America, whose size, however, is 270 times that of the Netherlands)[140].

Nonetheless, as much as The Netherlands' case is indeed a virtuous example, one must consider that not every nation can count on the Dutch's resources and their exceptionally high living standards, alongside a distinctly strong social welfare and sturdy political institutions. In 2023, The Netherlands' GDP per capita registered an impressive all-time high at $62.536,70[141]. Can we expect the same level of resilience, high quality performance and technological expertise from Niger, a water-scarcity affected country, whose GDP per capita in 2023 hit an all-time high as well, $618,30 approx., about 101 times lower than the Dutch[142]? The Netherlands' GDP stands at about $1171,1 billion, whereas Niger's at 15 billion USD, 78 times less. Moreover, Hollande spent about 51 billion USD for education in 2022[143]; Niger about $630 million[144]. Whatever economic parameter one could consider, the Netherlands would significantly outperform Niger. However unfair this comparison may sound, the two countries enter diplomacy and international relations in the real world sitting at the same table. In fact, if anything, Niger's deficit is much deeper than the GDP per capita already shows, were one to

[137] Rijkswaterstaat - Ministry of Infrastructure and the Environment, "Into Dutch Soils" (Utrecht, The Netherlands: Rijkswaterstaat, 2014), https://rwsenvironment.eu/publish/pages/126603/into_dutch_soils.pdf.
[138] Adam Symington, "Mapped: Global Livestock Distribution and Density," *Visualcapitalist.com* (Vancouver, Canada: Visual Capitalist, July 23, 2023), https://www.visualcapitalist.com/cp/mapped-global-livestock-distribution-and-density/.
[139] Ed Conway, *Material World. A Substantial Story of Our Past and Future*, 1st ed. (New York City, US: Knopf, 2023).
[140] Frank Viviano, "This Tiny Country Feeds the World," nationalgeographic.com (National Geographic, August 31, 2017), https://www.nationalgeographic.com/magazine/article/holland-agriculture-sustainable-farming.
[141] World Bank Group, "GDP per Capita (Current US$) - Netherlands | Data," Worldbank.org (World Bank, 2023), https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=NL.
[142] Idem, compared to Niger's data from World Bank.
[143] Centraal Bureau, "Government; Expenditure on Education and Student Grants, Loans since 1900," Statistics Netherlands, December 7, 2023, accessed August 30, 2024, https://www.cbs.nl/en-gb/figures/detail/80509eng.
[144] World Bank, "Government Expenditure on Education, Total (% of GDP) | Data," Worldbank.org, 2019, https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS.

account for its healthcare, industrialization level, access to water – electricity and internet, infrastructure and technological development, gender pay gap data, absence of coping mechanisms to natural hazards and so forth.

As stated before, despite a lack of resources can occasionally and difficultly be exploited to improve one's position, it is undoubtedly more common than it constitutes a challenge, rather than an opportunity. In a silently yet fundamentally material society, the possession and access to natural assets are intrinsically valuable factors one could take massive advantage from, if correctly administered.

When it comes to the relationship between resource scarcity, possibly exacerbated by inequality in its access, and the human side of life, the matter becomes remarkably more urgent. Niger's incredibly tough situation is just one of the many examples one could choose among. Moving forward, two key questions emerge: how exactly do resource scarcity and unequal access affect a population's well-being? And how does this, in turn, compromise international security? The next two paragraphs will respectively address these vital points.

4.4 Scarcity's Impact on Quality of Life

This section begins quoting Robert F. Kennedy, USA 35th President John F. Kennedy's brother, and his remarks at the University of Kansas, a speech delivered on March 18th, 1968:

> Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile"[145] (Kennedy, 1968).

After more than 50 years, RFK's words resonate deeply in today's world, as one could argue we are moving rapidly towards an always more and more quantitative-based mentality, where economics is a matter of extremely high interest, numbers and data are often considered more

[145] Robert F. Kennedy, "Remarks at the University of Kansas, March 18, 1968 | JFK Library," www.jfklibrary.org (JFK Presidential Library and Museum, March 18, 1968), accessed September 15, 2024, https://www.jfklibrary.org/learn/about-jfk/the-kennedy-family/robert-f-kennedy/robert-f-kennedy-speeches/remarks-at-the-university-of-kansas-march-18-1968.

important than the actual real consequences they produce, measured on the direct and indirect impacts they have on human life. RFK's statement simply highlights the limitations of purely economic measures in capturing the true effects of policies.

In the context of this dissertation, this arguable disconnect between quantitative metrics and real human outcomes becomes even more apparent, the consequences of which go beyond numbers. Resource scarcity and the asymmetry in distribution profoundly affect a nation's quality of life (from now on, "QOL"), in all likelihood triggering or exacerbating migration, geopolitical international tensions and national social unrest. Before moving forward, however, it is imperative to fully understand what QOL truly means, how the two factors aforementioned influence the QOL of a country and why it is relevant to this dissertation.

"Quality of life", QOL in short, is defined by the World Health Organization as "an individual's perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards and concerns"[146]. Understanding the QOL measurements is beyond crucial in order to grasp the influence they exercise on migration patterns and, consequently, international stability.

The QOL of a nation, a region, a continent or any kind of geographical area is usually measured (yet, not exclusively so) through the Human Development Index, typically shortened to HDI, a statistical "summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living"[147]. The HDI was introduced for the first time in the annual Human Development Reports, produced by the Human Development Report Office of the United Nations Development Programme (UNDP). The annual reports were created by Pakistani economist and politician Mahbub ul-Haq, with the help of already recalled Amartya Sen and other experts, in 1990. Haq's aim, which seemingly guided his whole legacy, was to shift the public attention relating economics from the economic performance capturing numbers and data, traditionally referred to in order to judge a nation's doing, to the more relevant human consequences of a country's policies, which he believed to be much more adequate and relevant. After all, in the first of the reports he created, Haq stated:

[146] World Health Organization, "WHOQOL - Measuring Quality of Life," who.int (WHO), accessed September 15, 2024, https://www.who.int/tools/whoqol.
[147] UN Development Programme, "Human Development Index," hdr.undp.org (UNDP), accessed September 11, 2024, https://hdr.undp.org/data-center/human-development-index#/indicies/HDI..

> People are the real wealth of a nation. The basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives. This may appear to be a simple truth. But it is often forgotten in the immediate concern with the accumulation of commodities and financial wealth[148] (Haq, 1990).

The HDI suffers from certain measurement flaws (e.g. the HDI does not reflect on possible wealth inequalities inside an area, the quality of goods in a country et cetera) so that it may not fully capture the nuances of development, especially in high-performing countries (the G7 members, above all) where differences in inequality and QOL can be more pronounced. However, to address these limitations, the IHDI (Inequality-Adjusted HDI) was brought forward, to provide a more minute view. Nonetheless, both indexes can strongly help in identifying the most challenging areas for the global successful development and suggest ways to try and tackle the overall inequality of life standards.

The impact of natural resources and their access to society on a country's development could be highlighted through countless maps, graphs, data and so forth, which sometimes brilliantly portraits different interesting takeaways on the topic. For instance, please consider contemplating the following bar chart:

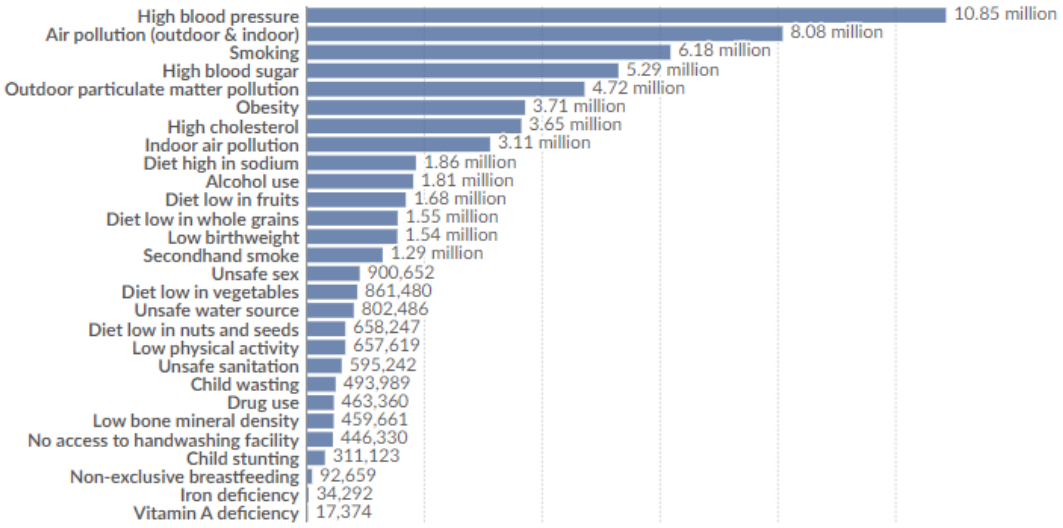

Figure 2. Deaths by Risk Factor, World, 2021

Source: IHME, Global Burden of Disease (2024) – with minor processing by Our World in Data

The estimated yearly number of deaths linked to each risk factor in 2021. These estimates carry significant uncertainties, particularly for countries with inadequate vital records. Please bear in mind that risk factors often

[148] Mahbub ul Haq, "Human Development Report 1990," *Hdr.undp.org* (New York City, US: Oxford University Press, 1990), 9 https://hdr.undp.org/system/files/documents/hdr1990encompletenostats.pdf.

overlap, as individuals may be exposed to several at once. Consequently, the number of deaths attributed to each risk factor is usually estimated independently.

The bar chart above explores the data of deaths by risk factor worldwide for the year 2021. What is relevant to this dissertation is that, out of 28 total risk factors considered, 13 could be considered strongly affected by resource scarcity and the unequal distribution or access, 9 could be related to a partial influence of the two factors, whereas the remaining 6 are not relevant to the topic.

The latter will not be further explained due to the irrelevance to this thesis: however, for clarity, the risk factors not considered to be strongly nor partially influenced by resource scarcity and unequal distribution (they might be remotely connected, but that would be considered a reach) are: high blood pressure, sugar and cholesterol, unsafe sex, obesity, diet high in sodium. These factors do not (or very little) revolve around resource scarcity because they are almost entirely driven by lifestyle choices, genetics, social and/or cultural factors. Others may even be more probable in developed nations: a diet high in sodium, for instance, is more probable to exist in resource-*rich* societies, where processed foods are generally consumed more[149].

The following 13 entries are deemed to be significantly affected:

STRONGLY AFFECTED BY RESOURCE SCARCITY AND UNEQUAL DISTRIBUTION:

- Air pollution (outdoor and indoor)
- Outdoor particulate matter pollution
- Diet low in fruits
- Diet low in vegetables
- Diet low in nuts and seeds
- Diet low in whole grains
- Unsafe water source
- Unsafe sanitation
- No access to handwashing facility
- Child wasting
- Child stunting
- Iron deficiency
- Vitamin A deficiency

Consider each group (constructed on causes similarity) and the relative impact of resource scarcity and unequal distribution on their existence:

[149] Mathilde Touvier et al., "Ultra-Processed Foods and Cardiometabolic Health: Public Health Policies to Reduce Consumption Cannot Wait," *British Medical Journal* 383 (October 9, 2023): e075294, https://doi.org/10.1136/bmj-2023-075294. In particular, see Fig. 1 at https://www.bmj.com/content/bmj/383/bmj-2023-075294/F1.large.jpg?width=800&height=600.

- Air pollution (outdoor and indoor) and outdoor particulate matter pollution are particularly affected due to possible limited access to fresh air, clean energy sources, vigorous reliance on solid fuels and poor environmental regulations, resulting in high levels of harmful pollutants.
- Diet low in fruits and whole grains, nuts and seeds and vegetables, iron and vitamin A deficiency are peculiarly driven by scarcity of affordable and/or nutrient-rich food which affect a diet's quality. Populations in resource-scarce environments may rely on less nutritious foods due to limited access to fresh produce.
- Unsafe water source, sanitation and no access to handwashing facility are definitely influenced by lack of clean, fresh water and building materials to edify adequate sanitation facilities with.
- Child wasting and stunting stem from severe food insecurity, malnutrition and poor access to maternal and child healthcare.

In 2021 approximately 68 million people passed away. According to the data given by the bar chart, with a rapid sum of the numbers from the 13 risk factors considered so far, about 18 million people died due to strongly resource scarcity and/or unequal distribution affected reasons: that accounts for about 27% of the 2021 total deaths, slightly less than 3 out of 10 people.

Now, the nine elements, thought to be only partially affected:

PARTIALLY AFFECTED BY RESOURCE SCARCITY AND UNEQUAL DISTRIBUTION

- Smoking
- Alcohol use
- Low birthweight
- Low bone mineral density
- Non-exclusive breastfeeding
- Indoor air pollution
- Secondhand smoke
- Drug use
- Low physical activity

Consider each group, as already done right earlier:

- Smoking, secondhand smoke, drug and alcohol use could be recognized as primarily behavioral choices rather than natural resources scarcity affected: a noteworthy portion of their existence could be traced back to potential coping mechanisms in stressful or difficult environments, often linked to poverty, degradation and limited opportunities. Resource-scarce areas can indeed exacerbate feelings of displeasure, stress, anxiety, depression (due to the influence on a country's economic status, which then potentially drives social, cultural and political unrest) leading people to turn to these substances for relief. However, cultural and social norms,

education, private beliefs and tastes, and addiction, play a significant role as well, quite surely a primary one.

- Low birthweight and non-exclusive breastfeeding could be linked to poor maternal health and lack of access to prenatal care, together with a poor and unbalanced diet. The unequal access to economic resources destined to women, in some parts of the world, can play a significant role in endangering both the mothers and newborns. Furthermore, other cultural, social and religious factors could also have their share of responsibility.
- Low bone mineral density and low physical activity are indeed influenced by malnutrition, as well. However, genetics, age and one's lifestyle also play a large role in determining bone density and the amount of exercise a human being can sustain. Physical, economic, social and cultural reasons have a vital influence, at the same time.
- Indoor air pollution can be tied to lack of fresh, clean air and renewable energy sources; however, other factors contribute greatly, such as behavioral practices (e.g. in some regions traditional cooking methods might deteriorate the indoor air quality), technological availability, infrastructure, possible economic constraints et cetera.

In 2021, approx. 15 million people died because of the nine considered factors: said number represents about 23% of the total 2021 deaths, more than 2 in 10 deceased human beings.

If coupled with the strongly influenced factors data earlier estimated, a quick rough calculation provides worrying numbers: about *half* of the 2021 world's passings have been caused by strongly or partially resource scarcity and unequal distribution affected factors. This tragic image further proves how absolutely vital an efficient, insightful, and accurate analysis of this thesis' perspective is nowadays. It was greatly needed in 2021. If anything, it is even more so now, as time keeps on running, and the population growth risks exacerbating these key issues.

The deaths caused by resource scarcity and/or inequality in access are just one of the many factors one could refer to, were they asked on the impact the two have on human life. However, direct outcomes, like poor health, absence or scarcity of clean water, worse scholastic performance, increased irritability are not the whole picture. Resource scarcity also exacerbates environmental degradation, and what is particularly significant to this dissertation, is the fact that the damages done affect both developed and developing countries. The next figure will help put this issue into perspective. However, one should not necessarily panic: the data below shows that there are reasons to be hopeful for the future.

Consider the following scatter plot, extracted from the UNDP's Human Development Report 2023/2024[150]:

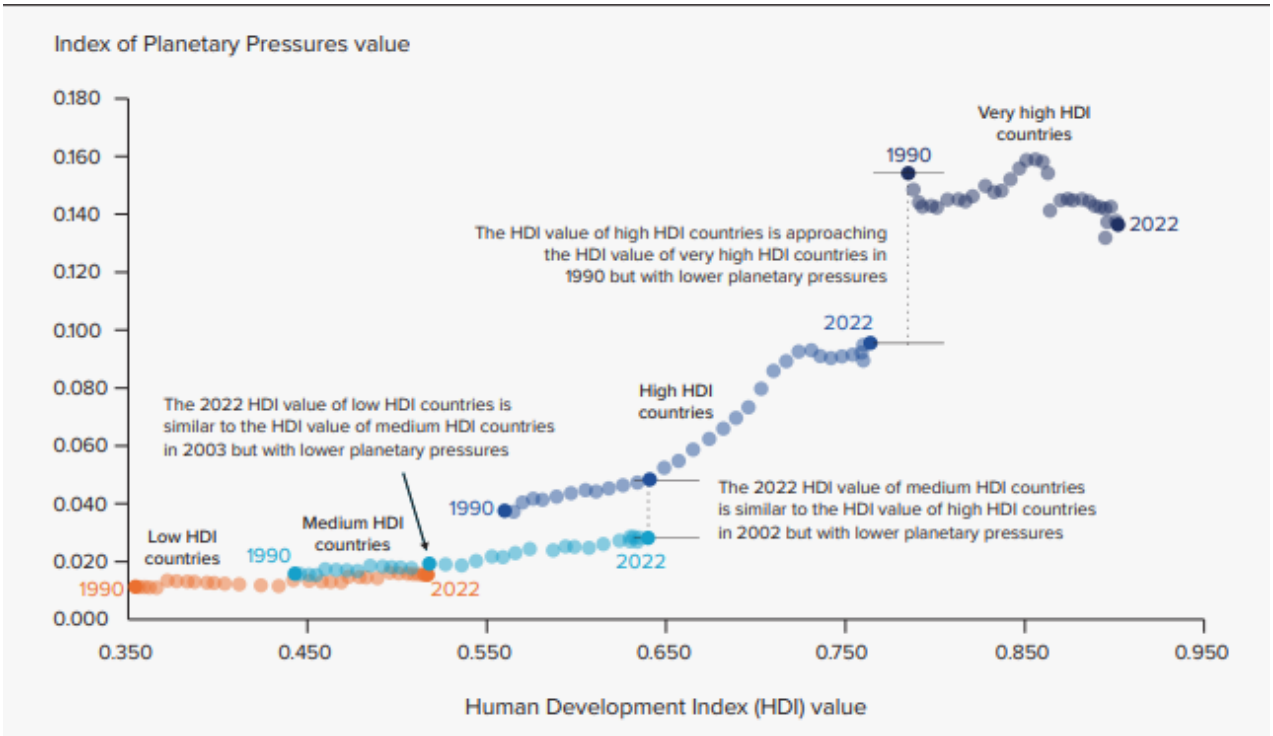

Figure 3. Improvements on the HDI Without Increasing Planetary Pressures, World

Source: United Nations Development Programme (2024) *Human Development Report 2023/2024: Breaking the Gridlock. Reimagining cooperation in a polarized world*. United Nations. P. 8

Scatter plot. On the X-axis, HDI value, ranged from 0.350 to 0.950. On the Y-axis, Index of Planetary Pressures value, ranged from 0 to 0.180.

The graph above shows the positive correlation between the HDI value and the Index of Planetary Pressure (IPP) value. The Planetary pressures-adjusted HDI, a product of HDI and (1-IPP) is:

> [an index which] adjusts the HDI for planetary pressures in the Anthropocene to reflect a concern for intergenerational inequality, similar to the Inequality-adjusted HDI adjustment, which is motivated by a concern for intragenerational inequality. The PHDI value can be interpreted as the level of human development adjusted

[150] UN Development Programme, "Breaking the Gridlock. Reimagining Cooperation in a Polarized World," *Hdr.undp.org* (New York City, US: UNDP, 2023), https://hdr.undp.org/system/files/documents/global-report-document/hdr2023-24reporten.pdf.

by carbon dioxide emissions per person (production-based) and material footprint per capita to account for the excessive human pressure on the planet[151] (UNDP, 2024).

Thus, this graph shows that, generally speaking, the countries which achieve higher levels of human development tend to exert greater pressures on the environment, particularly through carbon dioxide emissions and material consumption.

As an illustration, have a gander at Norway and Costa Rica's cases. The following numbers are extracted from 2021[152]: the two countries had very similar population levels, Norway about 5.4 million people and Costa Rica 5.1 million and almost identical population growth at 0.6% annually. However, the Norwegian GDP and GDP per capita were (and still are) undoubtedly higher (503 billion USD against 65 billion USD; approx. 93.000 USD against 12.600 USD GDP per capita). In this context of remarkable disparity in the two nations economic performance, the HDIs of the two have been, and still are, very different: Norway has consistently ranked at the top, being awarded the highest HDI value in the world 16 out of 32 yearly UNDP reports, whereas Costa Rica's HDI ranking peaked in 2005 at 47th place. In particular, in 2021, Norway could boast an HDI of 0.961[153], 2nd worldwide at the time behind Switzerland, by just 0.001; on the other hand, Costa Rica's HDI at 0.809[154] placed it at 58th place, tied to Uruguay, nonetheless still inside the "Very high human development" category. This impressive gap between the two states indeed reflected an as noticeable contrast in the two actors' environmental impact through CO2 emissions: in 2021 Norway produced about 7.7 metric tons per capita, whereas Costa Rica's only 1.5 metric tons per capita[155]. Norway's level was impressive in a way, considering Qatar's approx. 39.9 metric tons per capita being the highest in 2021[156]: nevertheless, it is unquestionable that the Scandinavian country still released CO2 to a much greater extent than the Central American one. The proof is further solidified when one considers that countries like France, Italy, Brazil and India, notably bigger economies than Norway though with worse HDIs, emit *fewer* metric tons per capita[157]; at the same time, Japan and Germany, 3rd and 4th by GDP in 2021, release only *slightly* more[158].

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[151] Idem. Statiscal Annex – Table 7, P.272
[152] All the following data was extracted from https://data.worldbank.org/.
[153] UN Development Programme, *Human Development Report 2021/2022. Uncertain Times, Unsettled Lives: Shaping Our Future in a Transforming World* (New York City, US: UNDP, 2022), 272, https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22reportenglish_0.pdf.
[154] Ibid.
[155] Both per capita CO2 emissions data taken from Global Carbon Atlas, "Carbon Emissions," globalcarbonatlas.org (GCA, 2023), accessed September 7, 2024, https://globalcarbonatlas.org/emissions/carbon-emissions/.
[156] Global Carbon Budget, "Per Capita CO_2 Emissions," ourworldindata.org (Our World in Data, 2023), accessed September 7, 2024, https://ourworldindata.org/grapher/co-emissions-per-capita?time=2021.
[157] Global Carbon Atlas, "Carbon Emissions," globalcarbonatlas.org (GCA, 2023), accessed September 7, 2024, https://globalcarbonatlas.org/emissions/carbon-emissions/.
[158] Ibid.

Although the empiric confirmations above, the data in the graph suggests that, overall, nations are currently improving their HDI with less environmental impact, potentially due to improved technology and less and more efficient resource-intensive developments. For instance, in 2022 the low HDI countries is almost identical to the medium HDI countries in 2003, though with less emissions: this can be said, more or less, for every x-HDI group and their respective 2003 comparison.

The scatter graph underscores the vital relationship between human development and the improvement of QOL and their potential and consequent environmental impact. When one considers the bigger picture, the underlying cruciality of how to tackle ecological challenges while uplifting nations worldwide should vigorously push governments, think thanks, agencies and more to constantly seek improvements from every perspective. In particular, if impactful themes such as deaths and human development are somehow linked to and affected by the environment and one's access to and exploitation of natural resources, the argument gains importance notably, hopefully conveying how absolutely essential it is to address these serious points.

These series of takeaways will be increasingly explored in the next section, which will tie them to the dissertation's topic of security. How exactly does this bulk of data translate into a possible worsening of purely global peace? The explanations may be several, yet primarily two will be scrutinized: migration and scarcity wars. In fact, it is believed that a notable portion of international tensions and disputes are either caused by the former or the latter. Other factors could possibly have an influence, but they may not be as crucial.

4.5 Fuel for Migration

The previous sections have highlighted key political, social and economic aspects: the world's population growth, the effects resource scarcity and unequal distribution exercise on human life, what a country's development may cost and so forth. These dynamics are all deeply relevant to one of the most pressing global phenomena: migration.

The European Commission defines migration, in the global context, as the "movement of a person either across an international border (international migration), or within a state (internal migration) for more than one year irrespective of the causes, voluntary or involuntary, and the means,

regular or irregular, used to migrate"[159]. It also promptly affirms, in a note, that "at the international level, no universally accepted definition for migration exists"[160]. Before commenting these statements, consider the International Organization for Migration (IOM) definition of the term "migrant":

> An umbrella term, not defined under international law, reflecting the common lay understanding of a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons […][161].

It may seem weirdly ironic that terms such as "migration" and "migrant", whose most famous version (international migration is usually more covered by media and publicly discussed than internal migration) is literally based on internationality, does not possess a universally accepted definition. Yet, it is believed that this may function as the perfect metaphor to address this factor: something that is so vastly talked about while so imprecisely and subjectively explored. It should not take one by surprise to acknowledge that the great majority of the times media, politicians and so forth talk about migration and migrants, their arguments often fall under the emotional, cultural and social umbrella, rather than a factual one.

This dissertation does not consider migration nor migrants from a subjective point of view, and while culture, ethics and societal beliefs and traditions play a huge role into shaping and affecting the outcomes of migration, the author maintains a rational and analytical approach. In fact, one could swiftly argue that different countries accept migrants in different ways based on the receiving end's norms, values, economic status, political institutions et cetera. The criticality of the theme could indeed reside partially into the multidimensional approach it requires for a sensible and cognitive dissection.

According to the IOM World Migration Report 2024, in 2020 the United States of America welcomed inside their borders about 43.4 million migrants, about 13% of their total population, making them the nation that received the majority of migrants by a substantial amount[162]. Germany and Saudi Arabia, respectively 2nd and 3rd in the ranking, received about 14 and 13 million people, accounting for a 17% and 37% of their populations[163]. On the other hand, according to the same report, the top

[159] European Commission. "Migration." *European Migration Network*, accessed September 10, 2024, https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/migration_en.

[160] Ibid.

[161] IOM, "About Migration | International Organization for Migration," www.iom.int, accessed September 11, 2024, https://www.iom.int/about-migration.

[162] Marie Mcauliffe and Linda A. Oucho, "World Migration Report 2024," *Publications.iom.int*, 2020, 124, accessed September10, 2024, https://publications.iom.int/books/world-migration-report-2024.

[163] Ibid.

three countries migrants departed from were India, with 17.8 million people crossing the borders, Mexico with 11 and Russia with 10.6[164].

A sensible portion of the migration reports and arguments open up and/or consist predominantly of numbers and data, as the subject is particularly fit to be discussed through quantitative reasoning. However, it is believed that there is more appropriate information than the amounts of migrants taken or lost. According to this dissertation, in certain cases migration may endanger international stability and aggravate existing geopolitical strains. In order to prove the point, please give though to the following graphs and data, which are strongly considered to be even more interesting to the thesis.

FIGURE 4 INTERNATIONAL MIGRANTS SINCE 1970

Year	Number of international migrants	Migrants as a % of the world's population
1970	84 460 125	2.3
1975	90 368 010	2.2
1980	101 983 149	2.3
1985	113 206 691	2.3
1990	152 986 157	2.9
1995	161 289 976	2.8
2000	173 230 585	2.8
2005	191 446 828	2.9
2010	220 983 187	3.2
2015	247 958 644	3.4
2020	280 598 105	3.6

Table 1. International Migrants 1970-2020, World

Source: *World Migration Report 2024* (2024) *IOM*. International Organization for Migration. P. 22 Table 1

Table of international migrants from 1970 to 2020. Notice the clear upward trend in both the absolute number and their share as a percentage of the global population.

The table provides captivating information: firstly, it is observable that, between 1970 and 2020 the number of international migrants has more than *tripled*, from approx. 84.5 million to nearly 281. This steady increase highlights the growing mobility of people due to globalization, economic opportunities, growing political unrest, exacerbation of environmental issues et cetera. Secondly,

[164] Ibid.

considering the % of the world's population migrants constitutes, one could easily perceive that the number was more or less stable across the 1970s and 1980s, and then rapidly increased from the 1990s to 2020: this mathematical trend means that migration is growing even *faster* than the global population, whose already quite impressive rate has already been explored.

These two key takeaways could be explained through several factors, whose complete analysis would require thousands of pages and months of research. However, aiming to staying the closest possible to the thesis, only the resource scarcity and/or unequal access induced or affected migration will be scrutinized. As one could certainly imagine, migration is such a complex phenomenon that it is almost impossible to find exact numbers of migrants who decided, voluntarily or not, to flee their nations *just* for resource scarcity and/or just for being victims of inequality in their distribution. Furthermore, it is imperative to recall that migration has many different forms: thus, policy makers and experts of the related fields must differentiate between *adaptive migration*, which is voluntary and undertaken to cope with changing conditions, and *forced displacement*, which results from sudden disasters or the gradual impact of, for instance, rising sea levels[165].

Hence why, although the following data represent merely resource scarcity affected migration, one should always remember climate change is often the bigger picture, constantly looming in the background. However, the pure scarcity of natural assets and their unequal access to people still may play a significant role in influencing a person or family's voluntary or not choice of escaping a nation: if the sea level rising is not a direct manifestation of a lack of resources, so are the availability of fresh water and fresh air, the shortage of food to biologically survive and land to exploit to possibly improve one's condition et cetera, with all the consequences these factors provoke (deteriorating health conditions, affecting personal hygiene, inducing resource scarcity wars, amplifying interpersonal and/or intergroup tensions, inflicting market failures, worsening education…).

Before addressing the main point, consider another possible perspective. Instead of which countries are affected[166], more of a national than an international perspective, it is firmly assumed that the following information constitutes an even more adequate and appropriate standpoint.

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[165] Please note that, usually, people *forced* to move can be either referred to as "refugees" or "migrants". The former emphasizes their need for protection, whereas the latter purely encapsulates their physical movement.

[166] Consider "affected" in its precise sense: Oxford Languages defines the term as something that is "influenced or touched by an external factor." This clarification is essential to prevent any misinterpretation regarding the intent of discussing migration. While migration may, under certain circumstances, exacerbate global security risks, it can also generate substantial benefits depending on the context. Thus, the word "affected" is used here in a strictly neutral sense, free from any implied judgment or personal opinion about migration's positive or negative impacts. This neutrality

In fact, consider taking a moment to inspect the following chart:

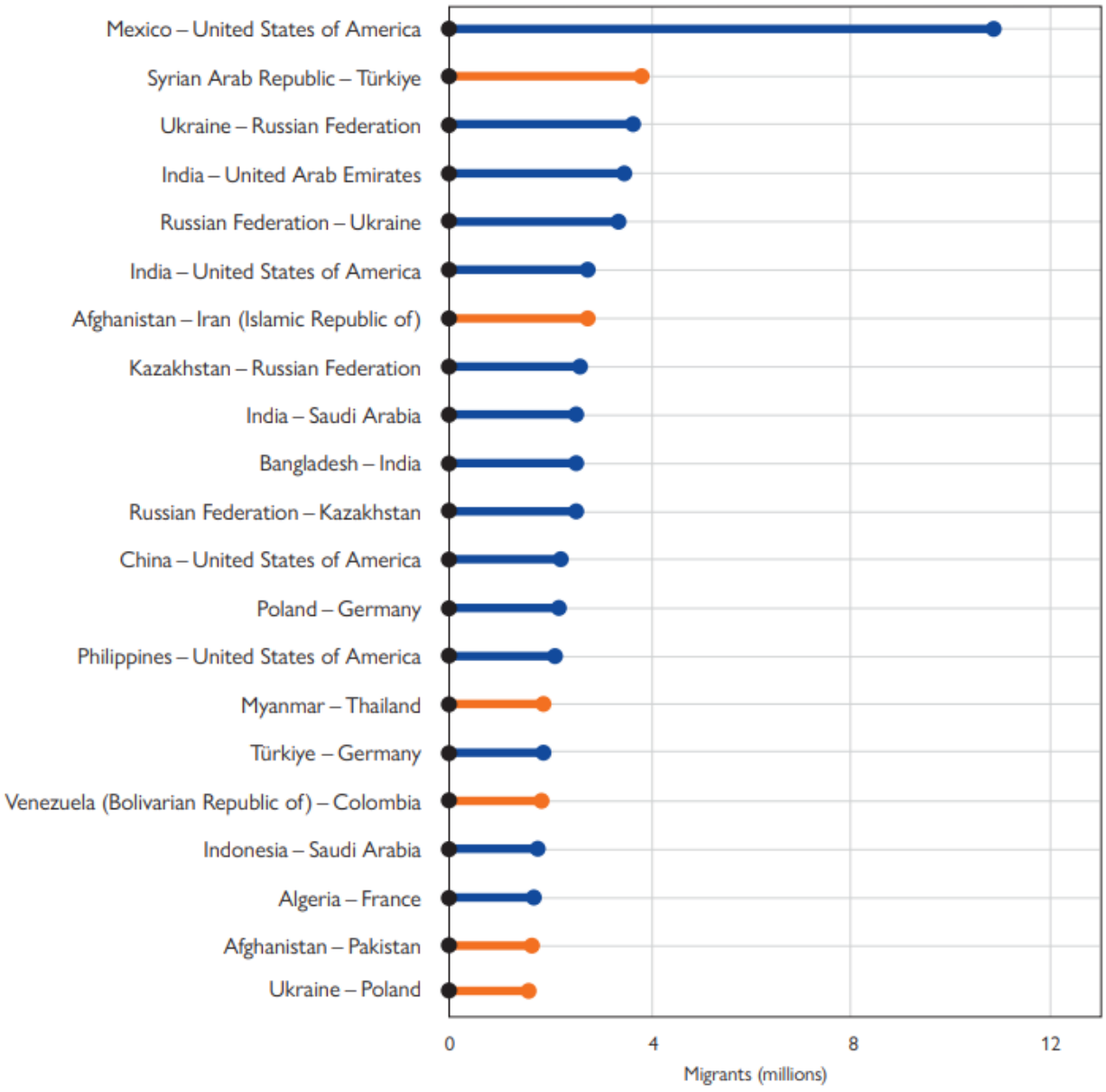

Figure 4. Top International Country-to-Country Migration Corridors, World, 2024

Source: *World Migration Report 2024* (2024) *IOM*. International Organization for Migration. P. 23 Figure 1

The chart visualizes the largest migration corridors worldwide as of late 2023. It shows the migrants who were born in the first-mentioned country and currently residing in the second, in quantitative measure (migrants in millions). The orange-colored lines represent the corridors mainly driven by displaced people, typically due to conflict or humanitarian crises. The data includes the ongoing war in Ukraine.

ensures that the focus remains on the external influences shaping migration, rather than casting any judgment on the phenomenon itself.

As could be easily noticed, the Mexico to USA migration corridor is by far the largest, with about 11 million migrants: this indicates the long-standing, high volume movement from Mexico to the United States. It has historical, economic and geopolitical underpinnings due to geographic proximity, one of the longest borders in the world, a massive disparity all around between the two nations and migration patterns influenced by trade agreements like USMCA[167]. However, most Mexican migration to the US is motivated by higher wages, better job opportunities and improved HDI conditions, rather than by immediate resource scarcity.

Inspecting only what matters to this research, thus, when it comes to scarcity and/or unequal distribution induced corridors, countries like Afghanistan, Bangladesh, Kazakhstan, Myanmar, Syria and Sudan are currently seeing hundreds of thousands of protracted emigrants, strongly or partially forced to flee by a lack of some vital natural assets. Take a moment to ponder on Afghanistan's situation, as for several reasons this case study perfectly embodies the international security challenges resource scarcity and unequal access can lead to.

4.6 Thirst for Control

Consider Afghanistan's current status. Afghanistan has more than 42 million people[168], can count on a decent geographical extension, though suffering from a landlocked position[169]. The nation also suffers from bordering with possibly dangerous states, such as Pakistan, Tajikistan and Iran, whose proximity has generated different militant groups and other extremist organizations to often proliferate and clash along the Afghan borders[170]. With regard to natural resources, Afghanistan could benefit on the possession of some key asset (for instance, as Alan Dowd mentions in an article published by Canadian think tank Fraser Institute, "[…] copper, cobalt, iron, barite, sulfur, lead, silver, zinc, niobium and 1.4 million metric tons of REEs"[171]), although a significant level of corruption and weak legislation strongly plague mining in Afghanistan. In order to give a proper idea of Afghanistan's tragic situation, bear in mind that some surveys conducted jointly by the Pentagon

[167] United States-Mexico-Canada Agreement (USMCA) replaced North American Free Trade Agreement on July 1, 2020, at the proposal of Former POTUS Donald Trump.
[168] Worldometer, "Countries in the World by Population (2024)," Worldometers, 2024, accessed August 30, 2024, https://www.worldometers.info/world-population/population-by-country/.
[169] A "landlocked" country is one that is entirely surrounded by land and has no direct access to the ocean or sea. It is usually considered a disadvantage because of the trade, economic, and transportation implications it provokes.
[170] For instance, see https://www.cfr.org/backgrounder/troubled-afghan-pakistani-border.
[171] Alan Dowd, "Afghanistan's Rare Earth Element Bonanza: Op-Ed," fraserinstitute.org (The Fraser Institute, August 13, 2013), https://www.fraserinstitute.org/article/afghanistans-rare-earth-element-bonanza.

and the US Geological Survey estimated around 2010 that the country was sitting on minimum $1 *trillion* of untapped minerals[172].

In addition to this already disastrous scenario, which vigorously undermines the country's hope for a better HDI, economic status, infrastructure level and more (hence, retaining more people inside the borders), the real main issue is water scarcity. In fact, Afghanistan faces *chronic*[173] water scarcity challenges, as the country's ranks 40th in the national water stress rankings[174] (Kuzma et al., 2023) and, even more importantly, falls in the "extremely high" category for both "no drinking water" and "no sanitation" factors according to the Aqueduct's Water Risk Atlas interactive map[175]. Translated into numbers, this means that water scarcity "leaves approximately 79% of its population without adequate access to this essential resource"[176]. Furthermore, as a 2016 United Nations Assistance Mission in Afghanistan (UNAMA) report states[177], "According to one estimate, groundwater sources have been reduced by as much as 50% over the past several years. As a result, about 60% to 70% of existing karezes[178] and 85% of the existing shallow wells are not yielding an adequate supply of water"[179]. This situation has numerous severe impacts on the lives of Afghan people, exacerbating emigration: 93% of children live in areas with high or extremely high water vulnerability; about 94% of schools lack basic handwashing facilities; and approximately 35% of healthcare centers do not have access to a basic drinking water supply.

Hence, the fundamental question: how does this all endangers international security? While the scarcity of water and its unequal distribution and access provokes noteworthy internal migration

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[172] Ahmad S. Katawazai, "Afghanistan's Mineral Resources Are a Lost Opportunity and a Threat," thediplomat.com (The Diplomat, February 1, 2020), https://thediplomat.com/2020/02/afghanistans-mineral-resources-are-a-lost-opportunity-and-a-threat/. The 2007 USGS report can be found here: https://pubs.usgs.gov/of/2007/1214/.

[173] The adjective "chronic" is here used in its "persisting for a long time or constantly recurring" definition rather than an "everlasting" one. As a *chronic* disease can simplistically be controlled but not cured, so does water scarcity in Afghanistan, whose complete once and for all solving is possible in theory yet would take titanic efforts that are more than unlikely to happen any time soon.

[174] Samantha Kuzma, Liz Saccoccia, and Marlena Chertock, "25 Countries, Housing One-Quarter of the Population, Face Extremely High Water Stress," *Www.wri.org* (Washington DC, US: World Resource Institute, August 16, 2023), accessed September 12, 2024, https://www.wri.org/insights/highest-water-stressed-countries.

[175] World Resource Institute, "Water Risk Atlas," Aqueduct (WRI, 2024), https://www.wri.org/applications/aqueduct/water-risk-atlas/#/?advanced=false&basemap=hydro&indicator=w_awr_def_tot_cat&lat=-14.445396942837744&lng=-142.85354599620152&mapMode=view&month=1&opacity=0.5&ponderation=DEF&predefined=false&projection=absolute&scenario=optimistic&scope=baseline&timeScale=annual&year=baseline&zoom=2.

[176] UNDP Afghanistan, "Water Is Life! UNDP's Crucial Role in Improving the Water Crisis" (New York City, US: UNDP, March 22, 2024), https://undpafghanistan.exposure.co/water-is-life.

[177] UN Assistance Mission in Afghanistan, "Water Rights. An Assessment of Afghanistan's Legal Framework Governing Water for Agriculture" *(New York City, US: UNAMA, 2016), 3 https://unama.unmissions.org/sites/default/files/2016_19_10_water_rights_final_v2.pdf.*

[178] A "karez" is a traditional underground irrigation system used in Afghanistan and other parts of Central and South Asia. It involves a series of underground tunnels that tap into groundwater and gently channel it to the surface through gravity.

[179] Data taken from 2008 Water Sector Strategy, pp. 24-25, available at https://faolex.fao.org/docs/pdf/AFG184664E.pdf.

rates, especially from Southern regions to Northern ones, and worsen the quality of life of Afghan people, how does it affect *international* peace?

Through the diagnosis of Afghanistan's case study, it is assumed that generally speaking there are various global processes the scarcity of a key natural resource can cause: firstly, it can seriously strain diplomatic relations between neighboring countries, creating or increasing already existent formal altercations. Secondly, it can lead to heightened competition over shared resources, which may escalate beyond merely diplomatic disputes, possibly into violence and armed conflicts. Thirdly, it can create dependence on importing lacking resources, which increases geopolitical vulnerability and creates the potential for economic coercion by resource-rich nations. Furthermore, resource scarcity and the unequal distribution could fuel nationalism, where the government may exploit this position of weakness in order to sharpen hate towards another country or people. In extreme cases, the militarization of resource management could occur, which might provoke arms races and increase the likelihood of border skirmishes.

These scenarios become increasingly plausible under some possible conditions: the *importance* of the resource(s) in question, whether such asset *crosses international borders* and how many countries it affects, the *absence* or *weakness* of international agreements and formal treaties, the *power imbalance* between the conflicting nations, *historical grievances*, *population growth* et cetera. It is strongly believed that when one or more of these variables coexist, the likelihood of conflict rises significantly. The result, when diplomacy fails, may very well be either outright conflict or long-term instability. In addition, such circumstances can destabilize entire regions, undermining international peace and cooperation.

After having answered this chapter's main question, it is useful to return to Afghanistan and introduce another example later on, even more drastic. In light of the previously enunciated points and related standpoints, it is important to reconsider the situation in Afghanistan. To be precise, Afghanistan's water scarcity, land degradation and inability to extract precious minerals (among endless other factors, less relevant to this thesis) endangers international security. Peculiarly, it does so through the first three arguments: that its natural resource scarcity and unequal access can (and have) worsen diplomatic relations with adjacent countries, that the two factors also create a strong competition over key resources, which in practice did escalate into border skirmishes, and that the country's geographical characteristics provides it with some leverage over certain assets and vulnerability over others, with consequent possible economic coercion and so forth.

Before diving into the Afghan case study, please keep in mind the following facts:

1. Water in Afghanistan is gravely scarce, and the problem is growing so rapidly that in the future there is very little to no possibility that it gets fixed.
2. Said scarcity not only affects the population directly (e.g. they drink contaminated water, less than recommended, poor hygiene…), but also indirectly (e.g. worse food production as the fields get little water, many rural areas abandoned lowering the economic potential, poor education, more unemployment…)
3. About 80% of Afghans relies directly or indirectly on agriculture for their livelihood[180]: the scarcity of water is a first-class economic and social problem (McKenna and Trillo Barca, 2021).
4. The country is one of the most climate change vulnerable[181]: the overall increase of temperature is affecting snowmelt from mountains, a key source of water[182] (OCHA, 2023).
5. The country is landlocked, meaning it is forced to rely heavily on bordering not-landlocked countries to access water and export goods[183].
6. Water scarcity and land degradation have pushed many families from rural areas to cities. increasing urban strain on already precarious living conditions[184] (UN habitat, 2014).
7. The Taliban government presence does not help international cooperation, foreign investments, other nation's support, as it is generally considered to be hostile towards other sovereign realities. As the article "The future of Assistance for Afghanistan" mentions: "Without progress on women's rights and inclusion, the Taliban risk jeopardizing Western donors' willingness to provide development assistance or eventual diplomatic recognition, both of which will be vital to Afghanistan's ability to secure large-scale investment"[185] (Runde et al., 2024, p. 5)

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[180] Josephine McKenna and Alberto Trillo Barca, "Afghanistan: To Avert a Catastrophe, Agricultural Assistance Is Urgently Needed," fao.org (FAO, November 19, 2021), https://www.fao.org/newsroom/detail/afghanistan--agricultural-assistance-farmers-drought/en#:~:text=Around%2070%20percent%20of%20Afghans.

[181] Stephen Rodrigues, "Afghanistan Is on the Brink of Climate Catastrophe, We Must Act Now," undp.org (UN Development Programme, November 28, 2023), accessed September 13, 2024, https://www.undp.org/afghanistan/blog/afghanistan-brink-climate-catastrophe-we-must-act-now.

[182] Office for the Coordination and Humanitarian Affairs, "Afghanistan: The Alarming Effects of Climate Change," *Unocha.org (OCHA, 2023),* accessed September 8, 2024, *https://www.unocha.org/news/afghanistan-alarming-effects-climate-change#:~:text=The%20mean%20annual%20temperature%20rose*.

[183] On the theme of landlocked countries and the disadvantages the characteristic poses, see *Landlocked countries: higher transport costs, delays, less trade* (2008). https://www.worldbank.org/en/news/feature/2008/06/16/landlocked-countries-higher-transport-costs-delays-less-trade.

[184] UN Habitat, "Afghanistan's Urban Future," www.unhabitat.org (UN, 2014), https://unhabitat.org/sites/default/files/download-manager-files/1424269536wpdm_Afghanistan%20Urban%20Future.pdf.

[185] Daniel Runde et al., "The Future of Assistance for Afghanistan," *CSIS* (Washington DC, US: Center for Strategic and International Studies - CSIS, June 2024), https://csis-website-prod.s3.amazonaws.com/s3fs-public/2024-06/240612_Runde_Assistance_Afghanistan_0.pdf?VersionId=m1v4USwXnUubY6i9OQY076181AkHtXda.

First and foremost, examine how these factors have significantly worsen Afghanistan's diplomatic relations with neighboring countries. Take into consideration, as a concrete example, the Helmand River disputes with Iran. The Helmand River flows in southwestern Afghanistan and eastern Iran, measuring about 1150 kilometers[186]. It is born in east-central Afghanistan, close to capital city Kabul, and it runs southwestward for more than half the Afghan land before entering shortly in Iran and emptying into the swamps on the Afghan Iranian border[187]. A significant amount of the river's water is not salty, hence why it has been exploited by Afghan farmers for irrigation, in addition to the fertile ground near its watercourse. Furthermore, the Afghans built two dams in the 1950s and a third one in 2021[188], which increased pressure on the already struggling river (as it crosses some of the most arid and hottest areas of the world) [189] (Kocatepe, 2024).

Predictably, this situation, rooted in the English protectorate on Afghanistan in the late 1800s[190], has sparked international disputes for over a century. On one hand, Afghans believe they hold sovereign rights over the river and its water resources, as the vast majority of its riverbed lies within their borders. They argue they should have the primary control as it is a critical domestic asset for their agriculture and development. On top of that they justify their difficulties to share the water with increasing droughts that have been happening more frequently due to climate change. On the other hand, Iran argues that since the river flows into their territory, they also have a legitimate right to benefit from it. Teheran also states that the Afghan dams have remarkably reduced the flow of water into Iran, affecting millions of people in southeastern Iran. They are also certain this lack of water provokes costly environmental degradation, leading to more frequent and severe dust storms, loss of biodiversity and threats to agriculture and fishing sectors.

From an international law view, Iran has a legal right to a share of the Helmand River's water, particularly under the equitable use principle. Moreover, Afghanistan must ensure that its use

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[186] The Editors of Encyclopedia Britannica, "Helmand River | River, Central Asia," in *Encyclopædia Britannica* (Chicago, US: Britannica, 1999), https://www.britannica.com/place/Helmand-River.
[187] Ibid.
[188] Mohd Faizee and Susanne Schmeier, "Water, Peace and Security," waterpeacesecurity.org (WPS, 2023), https://waterpeacesecurity.org/info/blog-01-06-2023-Troubled-waters-between-Afghanistan-and-Iran-as-border-troops-clash-over-the-Helmand-River.
[189] Damla Kocatepe, "The Helmand Water River Dispute between Iran and Afghanistan: Historical Background, Potential Risks and Proposed Solutions," *Kafkas Üniversitesi Iktisadi ve Idari Bilimler Fakültesi Dergisi/Kaü-Iibf Dergisi* 15, no. 29 (June 28, 2024): 308–33, https://doi.org/10.36543/kauiibfd.2024.012.
[190] Afghanistan was a British protectorate due to the Treaty of Gandamak, signed in 1879 during the Second Anglo-Afghan War. Afghanistan gained its independence on August 8th, 1919, when a peace treaty was signed at Rawalpindi formally ending the Third Anglo-Afghan War.

does not cause significant harm to Iran[191], and it should comply with the 1973 treaty, which established 820 million cubic meters of water annually to Iran[192]. Nevertheless, its enforcement has been, to say the least, problematic, largely due its ambiguous possible interpretations of the articles and the evolving geopolitical contexts, combined with the growing influence of climate change.

Given said information about the international dispute, evaluate how the diplomatic contrast has been caused and exacerbated by resource scarcity and the unequal access to water:

A. Water scarcity is the most fundamental factor in this dispute. Both Afghanistan and Iran face severe water shortages due to their arid climates and vulnerability to climate change. The lack of water intensifies competition for the Helmand River's resources, which are vital for both countries' agricultural sectors. In a scenario where water was abundant, the pressure on this particular resource would be significantly reduced, allowing for more cooperative management of the river. Instead, scarcity has pushed both nations to adopt hardline stances, viewing the river not just as a shared resource but as a matter of survival, particularly in terms of domestic food security and economic stability.
B. The geographic positioning of the Helmand River provides Afghanistan with a natural upper hand, as the majority of the river's length runs through Afghan territory. This disproportionate access has emboldened Afghanistan's sense of sovereignty over the river, reinforcing the belief that they are entitled to decide its use without significant input from downstream countries like Iran. The imbalance of access has aggravated Iran's frustration, as the downstream nation is at the mercy of Afghanistan's upstream management decisions. The unequal flow means that Iran feels more vulnerable, and Afghanistan is less willing to compromise on water-sharing terms.
C. The fact both countries are heavily reliant on this peculiar water source further exacerbate their interest in clashing rather than giving up or settling for less that they believe they deserve. The economic, social and political agents behind this controversy make the willingness to find a solution less probable: the high level of dependency makes any

[191] To properly understand these international law principles, consider reading Ikramuddin Kamil, "Afghanistan's Kamal Khan Dam and the Helmand River Treaty," thediplomat.com (The Diplomat, January 27, 2023), https://thediplomat.com/2023/01/afghanistans-kamal-khan-dam-and-the-helmand-river-treaty/.
[192] Many argue that the 1973 treaty is now highly inadequate. In order to further explore, see Mohsen Nagheeby, "The Worst or the Best Treaty? Analysing the Equitable and Reasonable Utilization Principle in the Legal Arrangements of the Helmand River," *Asian Journal of International Law* 14, no. 1 (January 2024): 25–44, https://doi.org/10.1017/s2044251323000395.

agreement more difficult, as neither country feels it can afford to give up its claim without jeopardizing its domestic stability.

D. The 1973 Helmand River Treaty turned out to be too feeble. Much of its articles are too malleable (traditionally called “grey areas”) and both governments strived to find certain arguments that could be somehow supported, molding the legal statements and exploiting their own interpretation (Nagheeby, 2024, p. 25-44).
E. Both Afghanistan and Iran have experienced significant population growth in recent decades, which has compounded the demand for water. As populations grow, so do the needs for agricultural production, industrial development, and potable water. This increasing pressure has made it more difficult for either country to negotiate, as they each require more resources to support their growing populations. In particular, Iran’s frustration stems from the fact that it not only has to deal with domestic demand but also the environmental impacts caused by reduced water flow, such as the drying up of wetlands and increased desertification.

In summary, it is understood that the diplomatic frictions between Afghanistan and Iran have been primarily caused by a natural asset scarcity and by their inequality in access. The hostility has been further exacerbated by the pivotal role water plays generally speaking in nowadays society, and by the relevance and preciousness it gains for the nations affected by a lack of it. Furthermore, the frailness of the international agreement between the two nations greatly contributes to the stall of negotiations. As for the cultural, religious, political, and ethnic differences which also play a role in straining their relations, these factors have been deliberately excluded from this analysis as they fall outside the scope of the thesis.

4.7 ¡Por el Salitre!

It has been argued earlier that resource scarcity and unequal access may provoke even more acute disputes, going beyond solely diplomatic disagreements and possibly leading to war (or, if not war, at least armed conflicts and violence). In order to empirically prove this argument, it is suggested we remain in southeast Afghanistan briefly, and then conceptually fly southwestward, towards Latin America.

Actual violence near the Afghanistan-Iraq border happened around summer 2023: according to an Holly Dagres interview to Fatemeh Aman, a non-resident senior fellow at the Middle East

Institute with a focus on Afghanistan and Iran, published on Atlantic Council, "A recent uptick in violence on the 580-mile border between Iran and Afghanistan came to a head on May 27th, when border guards on both sides clashed, resulting in the death of one Taliban soldier and two Iranian guards"[193] (Dagres, 2023). Unlike one could expect, "such clashes did not start with the Taliban government and have happened under previous governments as well"[194] (Aman, 2023), increasingly proving that the political leadership of a nation does not always play a vital role. This disastrous episode demonstrates that the lack of a natural asset can indeed drive, alongside other reasons, violent conflicts. Although the two countries have never fully committed to war over control of key natural resources, this was not an isolated incident. Aman highlights a similar episode from 1998 when

> Iran and the Taliban almost went to war after a Taliban militant raid on the Iranian consulate in Mazar-e Sharif left nine Iranians—eight diplomats and a journalist—dead. Iran deployed 200,000 army troops and 70,000 members of the Islamic Revolutionary Guard Corps (IRGC) to the border, but ultimately chose not to enter Afghanistan's soil."[195] (Aman, 2023).

While the 1998 incident was primarily driven by political tensions and fears of terrorism, the role that natural resources play in shaping a nation's perception of its own and its adversaries' strengths and weaknesses cannot be ignored. Indeed, the scarcity of vital resources can inflame these tensions and contribute to leading to episodes of violence and brutality.

Even more adequate and useful to explain how the battle for scarce resources and their unequal distribution can lead to violent and armed conflicts is a case study extracted from the past. The "War of the Pacific", also known as the "Nitrate War", provides a proper empirical example of how far nations are willing to go when it comes to the control of key natural resources that are considered to be scarce.

The Nitrate War was a violent armed conflict fought between 1879 and 1883 between Chile and an alliance of Bolivia and Peru[196]. The clash resulted in Chile's victory, and the country annexed precious disputed land on the Pacific coast[197]. In particular, the war broke out of a skirmish between

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[193] Holly Dagres, "Iran and Afghanistan Are Feuding over the Helmand River. The Water Wars Have No End in Sight.," atlanticcouncil.org (Atlantic Council, July 7, 2023), accessed September 4, 2024, https://www.atlanticcouncil.org/blogs/iransource/iran-afghanistan-taliban-water-helmand/. Please note that the reasons for the incidents between the two nations extend beyond pure natural resources matters. However, they undoubtedly hold a decent share of responsibility themselves.
[194] Ibid. These words are Fatemeh Aman's.
[195] Ibid.
[196] The Editors of Encyclopedia Britannica, "War of the Pacific," in *Encyclopædia Britannica* (Chicago, US: Britannica, July 12, 2024), https://www.britannica.com/event/War-of-the-Pacific.
[197] Ibid.

Chile and Bolivia over the control of a notable portion of the Atacama Desert[198]. After its win, Chile gained the region of Antogafasta from Bolivia and Tarapacà from Peru[199].

The reasons why the conflict started are still heavily discussed by experts and historians, undoubtedly because of the geopolitical consequences it has had since then to this day[200] (Mayo, 1980). However, it would be correct to state that one of the most important aims of Chile's strategic planning was to control the region due to its richness in valuable resources, such as sodium nitrate (vital for explosives, fertilizers, glass and so forth) and guano (used as fuel)[201]. Bolivia's reason to fight Chile was a certain level of discontent over a previous agreement's level of export taxes to share with Chile and noteworthy agitation over the possibility of losing coastal access. Peru's role in this conflict was induced by an historic rivalry with Chile over the hegemony on the Pacific coast, hence why the state had been strengthening diplomatic relations with Bolivia the previous few years[202].

Chile easily disregarded Bolivia's army in approximately a month, to then focus on more fearsome Peru[203]. However, after a couple of crucial naval victories at Iquique and Angamos in 1879, Peru's sea approaches were totally under Chile's monitoring, which was a war-changing factor[204]. Chilean army invaded Peru and managed to occupy Lima in January 1881, until October 1883, when the two countries signed the Treaty of Ancón[205].

In 1884, a truce between Bolivia and Chile granted Chile control over Bolivia's entire coastal region, including the Antofagasta province with its valuable nitrate, copper, and other mineral resources[206]. This agreement was solidified by a treaty in 1904, making Chile's control permanent[207]. In exchange, Chile committed to constructing a railroad linking Bolivia's capital, La Paz, to the port of Arica, and guaranteed Bolivia free access for its trade through Chilean ports and territory[208].

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198 Ibid.
199 Ibid.
200 John Mayo, "A 'Company' War? The Antofagasta Nitrate Company and the Outbreak of the War of the Pacific," *Boletín de Estudios Latinoamericanos Y Del Caribe* 28 (June 1980): 3, http://www.jstor.org/stable/25675055.
201 Osprey, "The Beginning of the War of the Pacific," Ospreypublishing.com (Osprey Publishing, April 5, 2017), https://www.ospreypublishing.com/uk/osprey-blog/2017/the-beginning-of-the-war-of-the-pacific/.
202 Ibid.
203 The Editors of Encyclopedia Britannica, "War of the Pacific," in *Encyclopædia Britannica* (Chicago, US: Britannica, July 12, 2024), https://www.britannica.com/event/War-of-the-Pacific.
204 Ibid.
205 Ibid.
206 Ibid.
207 Ibid.
208 Ibid.

Despite this, Bolivia continued its efforts to secure access to the sea via the Paraná-Paraguay river system, which eventually led to the Chaco War (1932–35) between Bolivia and Paraguay[209].

After stating the historical events and consequences of the War of the Pacific, the armed clash will be analyzed through the key takeaways on resource scarcity's impact on international peace aforementioned:

A. Resource scarcity was the most critical factor in this conflict. The Atacama Desert, rich in nitrates and guano, became a highly contested region due to the demand for these assets and their scarcity.
B. The economic importance of these resources heightened the competition for control. If these resources had been abundant in other areas, the pressure on this region might have been less intense, potentially allowing for more peaceful negotiations. Instead, the scarcity of these valuable minerals forced all three nations to adopt aggressive policies, seeing control over the desert as vital to their national economic security.
C. Geographical positioning provided Chile with a natural advantage, as it bordered the disputed region and had better access to its ports and mineral wealth. In contrast, Bolivia's limited coastline and poor access to its own resources due to the desert's geography left it in a vulnerable position. This disproportionate access to resources and trade routes led to growing frustration for Bolivia and exacerbated tensions, particularly as Bolivia felt increasingly squeezed by Chilean interests. The inequality in access to these resources pushed Bolivia to take stronger diplomatic and military stances, despite its army being significantly weaker, while Chile sought to consolidate its control over the area.
D. Treaties and legal agreements prior to the war proved insufficient or weak. Although there were prior understandings and agreements between Bolivia and Chile over the control of the region, these were often dismissed or vague. The absence of strong, enforceable agreements left room for differing interpretations, leading to disputes that escalated into open conflict. The failure to establish clear legal boundaries and regulate the exploitation of resources in the region exacerbated tensions and fueled the war. A significant example of this diplomatic inability was the USA's 1880 failing attempt to mediate between the nations.
E. Population growth and economic demands in the late 19th century amplified the importance of controlling resource-rich areas. As all three nations were experiencing

[209] Ibid.

economic growth and modernization efforts, the demand for resources like nitrates and guano intensified. These resources were key to boosting agricultural production and fueling industrial progress, meaning that control over their extraction and export became increasingly critical. The growing pressure on these assets, particularly as global demand for fertilizers and industrial materials increased, compounded the strategic importance of the Atacama region, driving each nation to pursue more aggressive policies to secure these resources.

In conclusion, the War of the Pacific illustrates how resource scarcity and unequal access to valuable natural resources can escalate diplomatic altercations into armed conflict. The competition for control of the nitrate-rich Atacama Desert ultimately reshaped the political and economic landscape of the region, leaving Bolivia landlocked and consolidating Chile's dominance in the area. This case study proves that nations could indeed resort to arms, were the resources sought after particularly precious for one's economic prosperity. However, one should not lose all hope: if anything, it is believed that fully committing to an international war over resources is today significantly less probable than it was in the late 1800s, because of more solid international agreements, more elaborate diplomatic mechanisms, globalization and economic interdependence, rise of multinational corporations, technological improvements et cetera.

Conclusions: Quicksand

We had longer ways to go. But no matter, the road is life.

Jack Kerouac, *On the Road*

This dissertation sought to illustrate how resource scarcity and/or unequal distribution threaten international security. Based on both qualitative and quantitative analysis of the matter, through the examination of several case studies from various parts of the world and different moments in time, it can be argued that the two factors play a significant role in worsening national and global stability and pose remarkable threats to peace and prosperity. The findings illustrate the relevance of the issue and hope to properly underline the seriousness of the challenge, which is only going to increase due to climate change and the rising of the world's population.

While the multidisciplinary nature of international relations constitutes a noteworthy difficulty for understanding if and how much resource scarcity and unequal access play a part in the examined processes, the chosen approach of combining notions from different relating fields, empirical examples and quantitative data and graphs brings forth incisive perspectives and new possible takeaways on the point made.

It is hoped that this thesis provided new standpoints, helped creating in the reader new arguments and sparked interest on the inspected topic. Tragic examples like Venezuela or Afghanistan are not a product of the author's imagination but are rather very real and happening as we speak. To properly inform yourself over certain situations, even if they happen to be geographically far, is the least you can do for the people involved and undergoing these horrendous circumstances.

For those wishing to explore these issues further, several books read upon or referenced during the creation of this dissertation are highly recommended. Robert Jisung Park's "*Slow Burn"* is an insightful exploration of the insidious impacts of climate change on society. Ed Conway's "*Material World"* offers an engaging analysis of the six key natural resources that shape our world. Further reading from Kenwyn K. Smith's "*The Abundance-Scarcity Paradox"* to Thomas Homer-Dixon's "*Environment, Scarcity and Violence"* and Jared Diamond's acclaimed "*Guns, Germs, and Steel"* can provide valuable context and deeper understanding of the challenges discussed herein.

Despite the results presented in this document, it is crucial to recognize the inherent limitations in addressing a topic so vast and complex. Each case study mentioned and further explored is shaped by its own special historical, political, socioeconomic and cultural contexts which make every scenario unique. Nonetheless, the recurring themes and the common ground among the illustrated samples underline certain shared vulnerabilities and menaces that many nations may face when confronted with a lack of natural resources or an uneven access to them.

It is absolutely imperative that further research and experts from correlated domains seek out new solutions to the problem and determine advanced paths to lead the way for the future generations to come. Yet again, the point at issue strengthens the urgency to integrate descriptive and numerical frameworks in order to fully and thoroughly seize the bigger picture. We all should consider our impact in today's society and act carefully regarding environmental issues of such gravity.

Looking ahead, the next steps in addressing these challenges should merge both academic research and pragmatic policymaking. Scholars must continue to investigate how emerging global threats—such as climate change, new resource demands, and shifting geopolitical alliances—will exacerbate these dynamics. Policymakers, on the other hand, must not shy away from adopting forward-thinking, long-term solutions that prioritize sustainability, equitable resource management, and strengthened international cooperation. It is not easy, due to democratic mechanisms and a general tendency of looking to the short rather than the long term; yet it is fundamental.

In conclusion, and this may be the statement closest to the author's heart, the issues and threats outlined in this dissertation are not merely academic exercises or a testament to his personal interests. They have real implications on real human beings from real nations. As the world continues to spin and time inevitably keeps on running, the decisions made today will undoubtedly impact the security landscape of tomorrow. It is the duty of governments, institutions, businesses et cetera to acknowledge that their choices, their decisions, their policies do present a material impact on the world. To make their decision without clearly understanding the consequences, the risks or the straight out damages they provoke is cowardly ignoring the weight they exert on other human lives.

Among the many Native American tribes, the Suquamish and Duwamish people inhabited what is now the metropolitan area of Seattle, Washington. Their leader, Chief Seattle, was deeply connected to nature and life, believing our place in the world as only one part of a much larger, intricate whole. The following words have been traditionally attributed to one of his speeches from the 1850s. This thesis will come to an end remembering one of his most appreciated statements:

Humankind has not woven the web of life.
We are but one thread within it.
Whatever we do to the web, we do to ourselves.
All things are bound together.
All things connect.

Chief Seattle, leader of the Suquamish and Duwamish Native American tribes.

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