Outer Space Development, International Relations and Space Law

Outer Space Development, International Relations and Space Law: A Method for Elucidating Seeds

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CAMBRIDGE SCHOLARS

PUBLISHING

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A Method for Elucidating Seeds,
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This book first published 2012

Cambridge Scholars Publishing

12 Back Chapman Street, Newcastle upon Tyne, NE6 2XX, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-4438-3965-5, ISBN (13): 978-1-4438-3965-5

I dedicate this book to all the dreamers with natural gifts and a burning desire to apply them to uplift humanity.

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ACKNOWLEDGEMENTS

A special thanks to Fahad A. Turk, Christine Chase-Chittison, and Ben Young for assisting with the final process necessary to get this work out there.

FOREWORD

FAHAD A. TURK

The global knowledge community is made up of individuals, each with their own perspective and their own actual or potential areas of research. Individuals may become so attached to their research that they become oblivious to the connections between their work and the work of others. Realizing the opportunities that exist to construct bridges between our and others' ideas through shared research can enable humankind to grow beyond the sum of our own personal research goals, agendas, and outcomes. We should work towards a global community by focusing on ways to connect ever more people, ideas, and fields of research.

Understanding international relations, the meaning of global citizenship, and the application of the social and behavioral sciences has led to a technological-scientific revolution, creating not only a new perspective on education, but an undeniable force that now functions in parallel to it. Education is a dynamic process and is not limited to one specific science. We as human beings have the intellect to consider, understand, and create our own choices in any aspect of our lives. However, if we limit ourselves to any domain of any science we thereby limit the infinite possibilities of thought.

Due to survival strategies and the urge to be the best in our fields, we, as human beings, tend to neglect and discount the valuable contributions that our competitors could make to our own work, thereby foreclosing the possibility of a true dialog of the intellects—a dialog which children need even without knowing that they need it. Children from the ages of 4 to 16 are taught not to use the entirety of their brain, just as if society as a whole were conditioned according to the divisions the child encounters between school, family, the workplace, athletics, etc.—these being just a few examples of activities that are used to socialize people into typical patterns of behavior.

Exposure to many different domains of knowledge—such as space medicine for medical students and physicians, for example—allows individuals, especially younger students, unrestricted scope to expand their aspirations. As technology advances so do the technological pathways that allow us to communicate. Any education project which is directed towards

such an end promotes global communication. If we as a global community do not share our resources, we are closing crucial portals through which the insights of the future may make themselves available to us. On the other hand, if we do succeed so to share, we may come to constitute a true global community of human beings, which may be valued as the truest success with which our endeavors could be met.

PREFACE

If you cannot—in the long run—tell everyone what you have been doing, your doing has been worthless.
(Schrödinger, 1951: 7–8)

It is the eve of outer space development, but few people are aware of this. In the absence of awareness, people cannot prepare for the opportunities that will arise; and so the vast wealth likely to flow to Earth from outer space will cause ever-greater inequality and instability in our already unequal and unstable world.

This book is a call to educators to factor equality and diversity into the process of outer space development by creating a widespread movement to teach outer space development studies to all students, especially those who study social and behavioral sciences. In calling for this, I am also putting out a call to visionary thinkers to increase public awareness that outer space is already in the process of being developed. My objective is to provide a pedagogical approach aimed at mending the knowledge gap. If we fail in this objective, we are more likely than ever before to witness ever-widening gaps of social and financial inequality.

The first question that will arise as we embark on this process, of course, will be: Why Outer Space Development?

People often ask where the money will come from to develop outer space. Platinum-group metals such as iridium and osmium, and various other valuable untapped natural resources, have been discovered in abundant quantities and are likely to be mined by companies. The discovery of natural resources has sparked development projects in the past. These historical patterns of human behavior are occurring again today, as companies speed up the process of private spaceship development.

A myriad of space laws and policies are already in place to support space commercialization. Recently, the 2010 NASA Authorization Act and various other laws and policies initiated by the U.S. government have placed on the agenda plans to build advanced space transportation systems; to privatize spacecraft development; to create commercial space habitats, space stations, and space settlements; to initiate commercial space mining; to investigate spacecraft trajectory optimization for landing

on near-Earth asteroids; to engage in commercial spaceport construction and interstellar-interplanetary-international telecommunications; and to launch space exploration missions to near-Earth asteroids, the Moon, Mars, and Mars's moons. U.S. initiatives have in the past been mirrored by the international community, and we can expect to see similar patterns arising on a global scale—indeed, as this book will demonstrate, they already are.

The global community is experiencing economic recession, natural disasters, lack of opportunity, employment anxiety, failing K-12 programs, widening inequality gaps, uprisings, revolutions, revolts, unmet educational goals, and a general failure to uplift, inspire, and provide meaningful opportunities for significant portions of our population. In the United States of America, the wars in Iraq and Afghanistan failed to jumpstart the economy; the Dow Jones failed; Wall Street failed; millions of working people lost their houses to foreclosure; tent communities and homeless populations are on the increase; many people are experiencing depression, anxiety, career anxiety; we see alarming rates of people dropping out of high school and college; and there is a general lack of opportunities, along with high rates of job loss. People need something that will allow them to focus anew their talents, energies, abilities, and gifts, and use this bleak climate as an opportunity for positive change. Outer space development is emerging as an answer to this state of crisis. The question is: To whom will the benefits accrue?

Many strategic decisions have already been taken regarding space development of which the global general public is unaware. Once legal rights to space resources are granted, only those with the capital to take advantage of new laws and policies will be in a position to profit from the new space industries. Only those who are in a position to "know" about outer space development will be in position to take advantage of the opportunities. It is important to remember that the global general public has for several decades being paying the start-up costs for space exploration research, science, and technology. It's not too late to factor in equality before an infrastructure of inequality is forever with us as we venture to establish the final frontier.

I struggled for many years to find a framework for explaining what I observed was happening with respect to outer space development. Antonio Gramsci's insights from his many writings provided a suitable all-over-the-place/messy analysis that was able to accommodate the myriad activities occurring within the working parts of the outer space development

regime. Now that the battle between Communism and Capitalism is over, perhaps it's safe to pick out select insights from Gramsci. It is not my intent here to promote either Communism or Capitalism. Rather, I aim to promote equality as outer space is developed.

The methodological framework used in this book relies on theories and concepts of international relations, with added insights from critical analytical theory. My research addresses the need to increase public awareness regarding outer space development. It also serves as a reminder that embedded inequality, feelings of subjugation, oppression, and of being left out of important development projects tend to produce discontent, and are eventually likely to produce international conflict. Equal opportunities tend to bring peace. We must design a model suitable for peace as we develop the final frontier.

The first step toward accomplishing this goal is to expose students, teachers, administrators, civic leaders, and public officials to cutting-edge research which highlights emerging industries in the field of outer space development. Exposing students to this type of cutting-edge knowledge while it is being created is likely to have a markedly positive impact on their future careers. Preparing them now to lead in newly emerging industries at a time when outer space settlements are being constructed can serve as a powerful motivating force to enable them to want to excel in school. Budding abilities, gifts, and talents can be recruited, nourished, and developed. Space has long been known to engage and interest students, and it is time to take these possibilities to a place beyond mere fascination. It is time to take students to a new level—to actual meaningful participation in outer space development resulting in tangible career opportunities.

Imagine outer space development themes being used to motivate and reinspire high school students who have lost their interest in school. Imagine outer space studies being added to the K-12 curriculum across the globe. Imagine universities providing students the opportunity to prepare themselves to lead as newly emerging industries take flight. Imagine outer space development sparking creativity and innovation. Imagine realizable opportunities made known to people from all walks of life within each nation so that we can all get ready to meet the challenges as humankind ascends into outer space. Imagine people being retrained for new job opportunities. This vision enables us to view outer space development as a means for solving the inequality gap problem that many scholars, activists, and academics have complained about. Outer space development can serve as an incentive for world peace and equality.

During a television interview in May 2002, Channel 2 News correspondent Joe Dana asked me if it bothered me that my research might not be relevant for 200 years; in fact my research became relevant approximately two years later, in December of 2004, when the Commercial Space Launch Amendments Act was passed. This new law provided a legal framework for the newly emerging private spaceship industry.

There has been a pattern of articulation in my life. I've articulated phenomena that I suspected would happen, and I've watched as predicted phenomena occurred. People often have asked me how I knew that space tourism, space mining, private spaceships, and commercial space settlements would become newly emerging industries. This book represents my attempt to recount all of this "knowing" in the form of a methodology to assist students and scholars along their path towards understanding and explaining emerging phenomena.

Acting on intuition, I began researching space law and outer space development and imagined it becoming an emerging phenomenon. Imagine knowing or suspecting that something was going to happen, but not knowing how to prove it, or how to discuss it in meaningful ways. This need to know, prove, and discuss outer space development prompted me to pursue the Ph.D. path. On that journey, I learned how to develop a methodology for explaining and understanding social and behavioral phenomena. This was necessary, because without it I wasn't able to talk about the topic without getting funny looks and weird reactions. It was common to think that because I had no experience in science, technology, engineering, math, or space science, that I had no right to think or speak about outer space development. However, the seeds of proof and expertise were scattered all around: I just needed to learn how to locate, compile, analyze, understand, explain, and so discuss the relevant data.

From 1998 to 2006 I read books, articles, news reports, films, documentaries, videos, podcasts, hearing transcripts, policy statements, dissertations, websites, speeches, documents, databanks, policies, laws, and international treaties. I also attended various space-related conferences and listened to relevant presentations and discussions. I observed social and behavioral phenomena, analyzed written and printed materials distributed during the conferences, and presented papers to the congresses of the International Astronautical Federation and International Institute of Space Law. Inadvertently, I became part of the outer space development process, and around 2004 I was able to observe as outer space development began to accelerate. Ideology and discourse related to outer space had always made it seem as part of a fantasy world to most people;

but now a new global vision of outer space as the answer to many of the world's problems is emerging. Commercial spaceports are being conceptualized and constructed, new types of spaceships are being designed and tested, and space colonies are being planned, designed, and discussed. In this real life scenario, the actors are drawn from a multitude of nations which are planning, testing, and evaluating mankind's prolonged presence in outer space. I found myself right in the middle of all of this.

Here is my story.

INTRODUCTION

In 2010 the NASA Authorization Act was enacted. It authorizes the funds to enable new activities directed at the expansion and advancement of the process of outer space development. We can expect to see the various activities outlined in the policy begin to be implemented in the near future. We may also anticipate that newly emerging industries will take root across the global community. People need to know that all of this is happening in order to benefit as newly emerging space industries begin to flourish. This book was written to increase public awareness about outer space development.

Understanding Outer Space Development: Concepts and Themes

Since the 1950s scientists and engineers have been researching outer space and undertaking various types of space mission. Manned and unmanned missions have traveled to many planets, near-Earth asteroids, and celestial bodies within our solar system including our Moon, Mars, Saturn, 951 Gaspra, and others. As the result of a great deal of research and development, humankind now possesses deep knowledge about what's out there and how to get there and back. Key players have proposed a major shift which would allow industry to take over space exploration, space missions, and space infrastructure expansion. Today we are at the brink of this. The hypothesis presented and supported throughout this book is that outer space is right now in the process of being developed. The various chapters serve as supporting evidence.

Increased frequency of space missions, beyond the International Space Station, will cause an increased demand for construction of life support systems and structures, new types of spaceships, and innovation in space navigation and steering systems. More people are likely to become employed in space-related industries and more will be required to live and work in outer space. This is likely to cause a further increase in demand for construction of living structures, space transportation vehicles, life support systems, and other components of the space infrastructure. Outer space development is likely to be fueled by space mining of platinum group metals such as iridium and osmium, and various other valuable untapped natural resources have been discovered in abundant quantities in

outer space. Space mining proposals to tap into the wealth of asteroids are becoming more prevalent.[1] Natural resources found on asteroids and celestial bodies have been assessed at a value of thousands of trillions of dollars (Berinstein, 2002). Similar to gold rushes on various continents, an exciting new type of competitive race to possess precious metals is likely to step up the pace of space missions.

Supporting Data

On October 11, 2010 President Obama signed the NASA Authorization Act, giving the go-ahead for $58.4 billion dollars to be allocated for NASA programs and outer space exploration and development, over the next three years. This law complements the New Vision for U.S. Space Exploration Policy. In conjunction with various other laws and policies initiated by the United States, initiatives are being encouraged including: advanced space transportation systems; private spacecraft development; commercial space habitats; space stations; space settlements; commercial space mining; spacecraft trajectory optimization techniques for landing on near-Earth asteroids; commercial spaceport construction; interstellar-interplanetary-international telecommunications; and space exploration missions to near-Earth asteroids, the Moon, Mars, and Mars's two moons Phobos and Deimos.

Recent announcements about the retirement of NASA's Space Shuttle fleet and the cancellation of NASA's Constellation Program caught many people by surprise and left them scrambling to understand these Earth-shaking historical moments. However, the 2010 policy simply mirrored prior initiatives including the 2004 hearings of the President's Commission on Moon, Mars, and Beyond, and the 2009 US Plans for SpaceFlight Committee hearings,[2] wherein a new agenda was articulated including missions to near-Earth objects (asteroids), the Moon, Mars, Phobos, Deimos, as well as asteroids orbiting Mars.

The Small Bodies Assessment Group (SBAG)[3] was established in March 2008 by NASA to:

> identify scientific priorities and opportunities for the exploration of asteroids, comets, interplanetary dust, small satellites, and Trans-Neptunian Objects. SBAG also provides scientific input on the utility of asteroids and comets in support of human space activities. The group consists of several focus groups of open membership and an eight person steering committee. Input from the scientific community is actively sought. SBAG provides findings to NASA Headquarters, but does not make recommendations.

Although the Constellation Program was part of the 2004 policy, it was clear that NASA would eventually be "transformed" in line with the content of the 2004 New Vision for Space Exploration Policy. This policy and associated documents stated over and over again that part of NASA's transformation process would involve turning over many activities to the private sector. The transformation process for NASA is likely to result in NASA passing the torch over to several key actors.

Planning for Advanced Space Transportation Systems

On July 21, 2011 Space Shuttle Atlantis made its historic last flight, ending the United States' Space Shuttle fleet program. The writing had been on the wall for several years that the NASA Space Shuttle program was scheduled to end. Prior to ending the program, the private spaceship industry needed to be ready, and space entrepreneurs and others have been developing private spaceships for suborbital and orbital missions accordingly. Examples include Sir Richard Branson of Virgin Galactic, Jeff Bezos of Blue Origin, and Elon Musk of SpaceX. In November 2010, Space Exploration Technologies Corporation (SpaceX), a company founded by Elon Musk, a successful entrepreneur who created such companies as PayPal and Zip2, was granted an FAA license to reenter the Earth's atmosphere. This was the first time in history that private spaceships returned to Earth from orbit.

Historical Context

History is important. Without the Soviet Union's resistance to the privatization of outer space, it appears there would have been no counter action to this initiative to develop outer space in a free-market direction. The book comments on the growing pattern of international acceptance of globalization and free market–based principles for outer space development and new space industries (e.g., satellite telecommunications industries). An emphasis is placed on the third epoch because it involves new actors, new debates, new policies, and new industries—such as space tourism, space settlement, and space mining. In the post–Cold War era outer space development is taking on a new image: a place for joyrides for the wealthy, thrill seeking, fortune making, and colony building. This new image is increasingly being popularized at the cultural level through new space-related educational initiatives, prizes, employment opportunities, and movies.

Settlements

Commercial space architecture is likely to be an additional newly emerging industry since humans traveling into outer space will need somewhere to go and a place to stay. No matter what we call them, space stations, orbital hotels, or space colonies are a thing of the present. Mankind has already shown that humans can live and work in space for extended periods of time: the proof of this is the International Space Station (ISS)—a floating orbital laboratory for long-term research which was created by a partnership between sixteen countries (Brazil, Canada, Japan, Russia, United States, Denmark, Belgium, the Netherlands, Sweden, Norway, Switzerland, Italy, the United Kingdom, France, Germany, and Spain). Plans exist to expand the ISS further. Space transportation systems will need to be developed and perfected that are capable of transporting people and materials back and forth between Earth and low-Earth orbit, to near-Earth objects such as asteroids and comets, to the Moon, and to Mars and its moons.

The New Space Race

A new space race is underway, involving nations like Canada, China, the European Union, India, Japan, the Russian Federation, South Africa, and the United States, as well as international partnerships and companies including Virgin Galactic, SpaceX, Lockheed Martin, Boeing, XCOR, Orbital Sciences Corp., and others. Actions include hearings, policy statements, U.S. laws, international laws, domestic laws within other nations, and various historical, legal, ideological, institutional, political, economic, psychological, and structural factors, all operating together in the post–Cold War era during the heightened cultural dominance and acceptance of free-market ideology.

New types of space missions involving the private sector and international ventures are springing up—for example, the International Space Exploration Coordination Group, made up of fourteen space agencies, which aims to “advance the Global Exploration Strategy through coordination of their mutual efforts in space exploration.” Such partnerships and joint ventures aim to pool resources to accomplish cheaper, faster missions to the Moon, Mars, asteroids and elsewhere.

As a newly emerging industry, space tourism began in 2004. Just six years later, private sector growth has expanded into more advanced arenas of space transportation. We have witnessed a shift from corporations providing simple joyrides and suborbital tours of outer space to what is

likely to be corporations providing transportation from Earth to low-Earth orbit, to other orbits, to asteroids and near-Earth orbits, to the Moon and to Mars. Lockheed Martin appears to be preparing the Orion spacecraft for a journey to a near-Earth asteroid called Plymouth Rock pursuant to the New Vision for Space Exploration policy and the NASA Authorization Act which was enacted into law on October 11, 2010.

Missions to the Moon

The Google Lunar X Prize is a $30,000,000 incentive to encourage a private-sector robotic race to the Moon. Private companies from around the world were invited to compete to land a privately funded robotic rover on the Moon. It is logical to assume that a Mars Exploration Prize may soon be put into place given the successes of the Spirit and Opportunity rovers, which sent back photos and a plethora of data regarding the red planet during their trips to Mars.

The Outer Space Treaty of 1967

Only a few people are aware of all the things discussed in this book. Key actors will become the primary shareholders in the future; everyone else will be left behind. This would be contrary to the Outer Space Treaty which states that all people should benefit from outer space. The treaty begins with the following words:

> INSPIRED by the great prospects opening up before mankind as a result of man's entry into outer space,
> RECOGNIZING the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,
>
> […]
>
> BELIEVING that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,
>
> […]
>
> DESIRING to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

> BELIEVING that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples … .
>
> ARTICLE I
>
> The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind … .

Beautiful, heartfelt, and awe-inspiring. However, is it really likely that all people will benefit as outer space development happens? This treaty deems outer space and its resources as belonging to "the province of mankind." Only a few people are aware of the new space activities and newly emerging industries. So how can everyone benefit? Outer space development provides the perfect opportunity for democracy, equality, opportunity, and a solutions-based approach for many world problems. However, since there is little awareness and no critique, it is likely that past patterns of using public resources to establish wealth for the few will soon become globally irreversible Most space policy discourses and laws pay lip service to benefitting the public. However, at the beginning of the post–Cold War era, discourse appeared which argued that the notion of outer space development for the "benefit of all peoples" was impractical, unreasonable, and a hindrance to the system of free-market economic incentives necessary for the further development of outer space.

Public Apathy

The global general public does not seem to be concerned about outer space development. They should care, however, since they have been the prime investors in the research and development phase of outer space development. As it stands, only a few space experts, policymakers, and entrepreneurs, and a few others, are able to interpret recent events regarding the development of outer space. However, many people do care about jobs, educational and investment opportunities, and securing meaningful futures. In these times of crashing economies, job loss, high unemployment rates, and school system failures, people are searching for ways to create prosperous futures for themselves and their families. People can teach themselves how to research newly emerging trends of what is to come by using concepts and theoretical frameworks from the field of International Relations. For example, outer space has been fervently

discussed in the U.S. Congress (2001–2004), the Senate (2001–2004) and the President's Commission hearings (2004), as a vast untapped new territory which promises wealth for those who are able to go out and develop the final frontier. These government institutions have held numerous hearings where private-sector actors have testified that they should be granted the legal right to possess space resources, territories in space, and NASA's assets in order to encourage the further development of outer space. One problem with this development scenario—similar to the Wall Street crashes—is that privatization often leaves the general public holding the bag. They usually have to pay for things after an elite few have become wealthy. This is a global pattern that is often repeated, and is often unfair.

The first wave of outer space development changed the world. This process included establishing a satellite telecommunications infrastructure in geostationary orbit along with the globalization of new high-tech products and services. For example, the widespread global use of cell phones, the Internet, Facebook, Skype, and wireless financial transactions all seem to have happened overnight. Space commercialization has become generally accepted by the international community. There are several space industries which have officially gone through the process of becoming commercialized, and more recently privatized. These processes have been patterned by U.S. domestic laws which have encouraged space industries to become successful. Economic successes have then been used to gain the support and backing of the United Nations Committee on Peaceful Uses of Outer Space and the International Astronautical Federation. Strategic, targeted, specific agenda-setting arrangements such as conferences and workshops occurred in order to facilitate the commercialization processes across various countries. First this occurred with respect to satellite telecommunications, then remote sensing, then space transportation and launch services. Over time, more nations and more private companies became key players in the market. This pattern became the international norm during the 1980s and it has increasingly been the case ever since. After 1980, there was an increase in domestic regulations governing space activities. An historical analysis of both domestic and international space law evinces a pattern wherein certain norms, established through U.S. law, precede similar international legal norms and sometimes international law as established by the United Nations Committee on Peaceful Uses of Outer Space, the International Astronautical Federation, the International Academy of Astronautics, and the International Institute of Space Law. The U.S. was the leader in this trend wherein domestic laws began to guide space ventures. Other nations

have begun to do the same. Today, for example, the U.S. commercial space transportation industry is composed of a variety of private entities such as major aerospace firms and a multitude of other viable business entities and entrepreneurs engaged in space-related businesses.

More recently, the industries of space stations and spaceports have been placed on the agenda to go through this process. In terms of overall results, the telecommunications industry has provided many benefits to people all over the world. However, wider inequality gaps also appeared during this time. Outer space development has been re-packaged to match other arenas impacted by globalization. The field is taking on a new image—a place for suborbital joyrides and the thrill seeking associated with private space tourism. This could be followed by fortune making, with private space mining missions and then colony building, initiated by the establishment of bases, orbital architecture, RV-type spaceships, and permanent space settlements. This new image is increasingly being popularized at the cultural level. Swift actions such as the creation of spaceports in several countries around the world, multimillion dollar prizes for pioneering achievements towards space commercialization, privatization, and rapid advances in space transportation technology by the private-sector are occurring right now. The second wave of outer space development began with the legalization of private spaceship travel, the plan to retire the NASA space shuttle fleet, and the preparation of companies to take on space transport from Low Earth Orbit to Earth, space transportation systems, and space exploration missions to near-Earth objects (i.e., asteroids), the Moon, and Mars and its moons.

Chapter Summaries

Chapter 1 provides an overview of activities and change regarding space law. It also sets out the framework for the various components of the outer space development regime and provides a brief overview of international relations theories, both mainstream and critical theory. The account further explains how and why an eclectic methodological approach was used in this book, and the implications of this examination into outer space development.

Chapter 2 analyzes the history of space law during the first epoch from its inception in 1957, to 1979. It demonstrates how international space laws were created, and who had the power to assert which clauses and which norms would be embodied in the Outer Space Treaty of 1967 and the other international treaties and UN Declarations. It also demonstrates the role played by the United States and shows that the U.S. acted as the

"hegemon" in the Gramscian sense, even though space lawmaking during the first epoch was initiated, negotiated, developed, and codified by various state actors including the Soviet Union, then functioning as a competing superpower. Using a Gramscian lens, this chapter focuses on the international ideological and political environment of the first epoch to suggest that the need for the creation of international space law was prompted by Cold War fears. Because of the presence of the Soviet Union and the United States as competing powers during the Cold War, and the concomitant trust in the United Nations, space lawmaking was treated as an international affair during the first epoch and the norms and rules of outer space law were debated, negotiated, and drafted in the United Nations.

Chapter 3 links United States domestic space lawmaking to international space commercialization as a widespread practice and a U.S.-led international custom. It provides a brief history of the second epoch of outer space development (1980–1991) using a Gramscian analysis. It further demonstrates that U.S. hegemonic influence over international institutions increased during the second epoch and it discusses how U.S. laws and policies under the Reagan Administration caused space lawmaking to shift from the international arena to the domestic sphere. Hence, this chapter provides an explanation of how the United States initiated outer space development regime change and facilitated space commercialization through domestic space laws, rather than deferring to the United Nations' international lawmaking machinery.

Chapter 4 suggests that with the demise of the Soviet Union, free market ideology became increasingly dominant. The subsequent rise in U.S. hegemony and the dominance of free-market ideology impacted the outer space development regime and the U.S. began to accelerate the commercialization and privatization of satellite telecommunications, the International Space Station, and the space transportation and spaceport industries through a series of U.S. domestic space laws and policies. It takes a closer look at the process of creation and passage of U.S. domestic laws that facilitated privatization and commercialization in the areas mentioned above. This chapter demonstrates how this was done by drafting various domestic laws, bills, and policy statements to encourage this transfer of space activities over to private corporations. It also discusses how space commercialization has become generally accepted by the international regime.

Chapter 5 identifies the new actors and the political actions that they have taken in order to effect a change in space law to legalize the hyper-privatization of space exploration and space travel. These new actors and

actions have recently emerged in the post–Cold War era. This chapter establishes that globalization and free-market ideology are prevalent shapers of space law politics today, and it demonstrates how these realities have impacted space law in the post–Cold War era. In the U.S., a large number of space entrepreneurs have been busy advocating that Congress pass legislation to spark increased space privatization, President Bush articulated the New Vision for U.S. Space Exploration Policy in 2004, and created the President's Commission on Moon, Mars and Beyond in the same year. The President's Commission published an implementation report which outlines the direction for further outer space development. In addition, several new U.S. domestic laws to foster privatization were passed in December 2004 and December 2005. In addition, the increased reliance on private corporations for space activities has already become main themes for many international space conferences such as International Astronautical Federation Congresses and United Nations Committee on Peaceful Uses of Outer Space workshops.

Considering the new role played by the private sector and space entrepreneurs, and given the pattern of U.S. trendsetting behavior regarding space commercialization and privatization, recent U.S. legislation and policy may ultimately prove to have an impact which could wind up being disagreeable to various members of the international space lawmaking community. What will happen then? Is the international community of one mind regarding new privatization policy?

Chapter 5 also defines the concept of "hyper-privatization" of space as a new phenomenon involving private-sector actors who have been advocating that the U.S. government pass new laws favorable to commercial interests. Thus it identifies the prominent role played by private capital in the outer space development regime, identifying new actors and their actions. It further demonstrates the connection between the lawmaking process and the dominance of free market/neoliberal ideology and globalization. This enables us to better understand and explain why three periods of regime change have occurred, and how they have shifted from government to private and commercial.

Chapter 6 investigates the specific activities taking place at the cultural level, since this seems to be shaping new popular perceptions about outer space development. This includes new images of space travel recently being represented in the news, films, and magazines. It explains the importance of how space tourism is being represented today and the use of culture and ideology in shaping public ideas about space. Since ideology is usually shaped at the cultural level, I see popular cultural efforts in outer

space as critical in gaining legitimacy and public consent for the hyper-privatization of space.

Chapter 7 sets forth the conclusions and implications of this study regarding the activities and actors operating in favor of the development of outer space. By highlighting a hidden exercise of power at a critical point in time, this chapter provides suggestions on how to turn the process of outer space development into an opportunity for global equality. This includes highlighting the role played by state power, US law, ideology, and the influence of private capital. This chapter also helps to make sure we don't allow complete divestiture of publicly owned space assets including space exploration technology and equipment, natural resources, and space territory to the benefit of a dominant group. It explains that according to international space law it is the general public which owns these vast space resources. Yet the members of the general public, as a subordinate class, are not scheduled to benefit in any significant way by the new policy.

CHAPTER ONE

THE OUTER SPACE DEVELOPMENT REGIME

Although international relations scholars are beginning to apply critical insights to outer space issues, they have completely overlooked the issue of current power politics aimed at the hyper-privatization of outer space resources. More importantly, they have overlooked the implications of the creation of new forms of wealth and widening inequality gaps. Today, political actors are arguing that government is inefficient and needs to be replaced by the private sector in order for mankind to conquer space.

The study of international relations pivots on the concept of power and understanding how power tends to operate in our world. This chapter helps readers become familiar with the various contributions from key experts in the field of international relations, and then introduces the crucial concept of an "international regime." I use this explanatory framework to support my argument that outer space is in the process of being developed, and that the likely implications of the current development scenario will include extreme new forms of wealth which will dramatically impact the global political economy.

The Notion of an "International Regime"

The concept of a "regime," drawn from the field of international relations, provides a useful conceptual tool with which to draw together the many seemingly disparate activities which are, at root, all part of the hyper-privatized development of outer space. The value of the concept of a regime lies in its ability to describe a myriad of discourses and behavioral patterns in a way which increases our ability to understand how power and politics operate within them. An helpful analogy can be drawn here between an international regime and a human body. A human body is made up of parts that we can see, such as arms, legs, a torso, a head, eyes, and skin, while also having other ephemeral qualities, such as imagination, a spirit, a soul, intellectual capacity, charm, a presence, and so on. Analogously, the body of an international regime is made up of key actors, norms, laws, policies, industries, and activities, as well as social, behavioral, and institutional practices. Thus the regime that I refer to as the "outer space development regime" can be said to contain parts that we can see and measure, and other parts which are more difficult to capture in