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THE QUESTION CONCERNING SUSTAINABLE DEVELOPMENT: DEMOCRACY AND TECHNOLOGY IN THE CASE OF THE BRUNDTLAND REPORT

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SUMMARY

Given the apparently contradictory needs of economic growth and environmental conservation, it comes as no surprise that the term "sustainable development" which aims at both ends has had such a powerful influence in contemporary discussions. The term was formalized with the 1987 publication of the Brundtland Commission's *Our Common Future* (OCF). This United Nations (UN) sponsored book was to fundament a major change in the face of development and fundament a new hegemony and direction "not just in a few places for a few years, but for the entire planet into the distant future" (1987, p. 4).

Since then the use of the term has grown exponentially, justifying much of the development work carried out by the UN and other transnational, national and local governing bodies. On paper, the consensual work seems both impressive and reassuring. However, after twenty years of implementation there remains the question: since world leaders got involved with the issue in the late 1980s, does humanity live in a more *sustainable* way than before?

Whatever the answers are to this query, all points to the starting point of this thesis: what *is* sustainable development? Is there a clear-cut or an *objective* referent for this concept? In which ways has the concept been shaped by the diverse political, economic, ethnic, and grassroots interests involved in its implementation? Is it a democratic response to the ills of technocratic society, or is it a tool for control?

This thesis essays to offer a critique on the UN's concept of sustainable development, brought out by present day modalities and concepts of modernity, technology, democracy and their essential interaction. By focusing on sustainable development and using Critical Theory as a heuristic, we can see the multitude of historical, economic, social, and philosophic assumptions and players involved in the discussion. The result is that this critique should then open up the possibility to create a better normative and subsequently an improved, more democratic and prescriptive version of the concept.

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ACRONYMS, ABBREVIATIONS AND SYMBOLS

AEC	Atomic Energy Commission
ANT	Actor Network Theory
area-T.O.D.	Technical Operations Department of the World Bank
ASSOANE	Association of Friends of Nature and the Environment
CEO	Chief Executive Officer
CTA	Constructive Technical Assessment
EDF	Environmental Defense Fund
EHM	Economic Hit Man
EPA	Environmental Protection Agency
FOE	Friends of the Earth
GDP	Gross Domestic Product
GMO	Genetically Modified Organism
GNP	Gross National Product
GNP/pc	Per Capita Gross National Product
ICSU	International Council of Scientific Unions
IMF	International Monetary Fund
IPO	Initial Product Offering
ITESM-CCM	Instituto Tecnológico de Estudios Superiores de Monterrey Campus Ciudad de México
IRBD	International Bank for Reconstruction and Development
IUBS	International Union of Biological Sciences
IUCN	International Union for the Conservation of Nature
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
NSF	National Science Foundation
OCF	*Our Common Future* (the book)

OECD	Organisation for Economic Co-operation and Development
SCOT	Social Shaping of Technology
SftP	Science for the People
STS	Science and Technology Studies
UN	United Nations
UNAM	Universidad Nacional Autónoma de México
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
USA	United States of America
USD	United States of America Dollar
USDS	United States of America Department of State
WASD	World Association for Sustainable Development
WCED	World Commission on Environment and Development
WTO	World Trade Organization
WWII	World War II

INTRODUCTION

Given the apparently contradictory needs of economic growth and environmental conservation, it comes as no surprise that a term like "sustainable development" which aims at both ends has had such a powerful influence in contemporary discussions on the future of humankind. Since the defining of the term by the United Nations (UN) through their World Commission of Environment and Development (WCED) in 1987, participation on the theme has expanded exponentially over the past decades with world summits taking place on all continents. These culminated at the Earth Summit in Johannesburg 2002, the largest-ever event of its kind with over 21,000 participants including representatives from 191 countries and over 100 heads of state present.

The meetings have been said to address the issues facing contemporary global society. Population, particularly in what are called "developing nations," continues to grow. Likewise, poverty, urbanization, economic activity and pollution are on the increase. Industrial output has jumped over fifty-fold in the past half century. Overshadowing the performance of the modern economy is the fact that over the past hundred years, the citizens of the planet have been divided by two world wars and innumerable other armed and political conflicts throughout the Cold War and more recently the so-called War on Terrorism. Yet, at the same time Perestroika promised to end the political division, leading into speculations that the free market democracies were the platforms taking us to what some, in particular and perhaps most famously, Francis Fukuyama (1992), were calling the "end of history."

In response to this state of affairs, in the early 1980s the UN created the WCED to establish an independent mission to come up with a "global agenda for change" (WCED, 1987, p. ix). By 1987 what became known as the Brundtland Commission, after its chairman, Prime Minister of Norway, Gro Harlem Brundtland, published the four-hundred page document entitled *Our Common Future* (OCF)—also known as the Brundtland Report. This book was to address this major change and fundament a new hegemony and direction for the world community.

Written with a backdrop of widespread drought in Africa killing close to a million people, a massive chemical spill in Switzerland which rendered the Rhine toxic, the Chernobyl nuclear reactor explosion, and the neo-liberal reforms of the Washington Consensus, the document revolved around an undertaking that was to sustain human progress "not just in a few places for a few years, but for the entire planet into the distant future" (1987, p. 4).

Our Common Future was founded on two, seemingly opposing words. Put side-by-side, these concepts were transformed into a term that was to revolutionize the way we imagined our future. The term was, of course, "sustainable development."

The WCED document offers an ideal object of study in both time and space for the historian, philosopher and sociologist of science. For the product of their labour was to resolve the issues of the Earth's deteriorating social and physical environment and come up with a global agenda while using the "latest and best scientific evidence" (1987, p. 4). It was to offer both a normative designation and an administrative prescription to the issues plaguing modernity—essentially a new technology in the form of legislation. Not surprisingly, it has become the supranational organization's overreaching protocol for its wide gamut of development plans and money lending schemes via its numerous organs throughout the planet.

On paper, the consensual work seems both impressive and reassuring. In reality, though, since world leaders got involved with the issue in the late 1980s, does humanity live in a more *sustainable* way than before? What is this campaign giving us, and perhaps most poignantly, what is it taking away?

Whatever the answers are to these queries, all points to one final question and the starting point of this thesis: what is the UN's version of sustainable development? Is there a clear-cut or an *objective* referent for this concept? In which ways has the concept been shaped by the diverse political, economic, ethnic, and grassroots interests involved in its implementation? Is it a democratic response to the ills of technocratic society, or is it a tool for control? Is there a genuine interest in making this work? Or is it a new façade for the age-old problematic of human overuse and mismanagement?

By investigating the concept of sustainable development, its history, its moment of conception and its implementation, we can turn to a crucial question that has been missing throughout the debate: in the UN's agenda for a sustainable future, could it be possible that democracy is being left in the balance?

These questions show how, at the heart of this thesis, there lies a philosophical divide between the traditional reductionist science and cybernetic viewpoints. Throughout this work, we will find these two cosmovisions revealing themselves in various forms, and discuss how they resolve their differences at each encounter, particularly in the sense of democracy.

These two forces are also at play in the syntax of this thesis—that is in the way it is written. Because of the complexity of a cybernetic analysis, I can only claim to have made an attempt to steer clear as I could from the linear approach generally taken by the sciences. Yet, at the same time I have to admit that I have failed quite simply to do a completely cybernetic approach, whose abstractions would in essence be endless. To my defence I have tried to focus on a multidisciplinary, *a posteriori* framework taking principally from the fields of philosophy, history, sociology, anthropology and economics to complete a well rounded investigation to the study of sustainable development. So while I realize that even before I begin, my attempt is destined to fall short of a purely cybernetic approach to the issue, I hope that it will at least be seen as a valiant compromise.

The reason for the dialectical nature of the syntax of this study seems (at least to me) fully congruent with the argument that I am trying to tackle. My starting point is to investigate if the WCED's version of sustainable development incorporated what was truly radical about the environmental issue. Let us delve in deeper here. For key to understanding this proposition is to realize that the environmental movement was not only about the environment. It was about a kind of radical, cybernetic democracy as we will see in chapters 1 and 2. The corollary is that development was not really only about development. It was explicitly about creating profit and based on a technocratic control of power as we will see in chapter three.

There is a final clue in the syntax of this thesis on the need to invoke these two opposing philosophic forces of scientific knowledge and cybernetics. At its very heart, the two ends of the

dialectic are seemingly intertwined in a "black-boxed" definition that was defined by the UN in 1987 as sustainable development. As Andrew Feenberg states, "In the absence of absolutes, the best we can hope for is to participate in a still unfinished history and to derive criteria of progress from reflection on its course and direction" (2002, p. 19). Come what come then, this thesis seeks to open the Pandora's Box of the UN's version of sustainable development to see what is inside this law—a legal technology—which aims at legislating the future of mankind. And in so doing this thesis can be considered a "revealing" in the Heideggerian sense of the word.

In its totality, then, this thesis essays to offer a critique on the UN's concept of sustainable development, one that is brought out by present day modalities and concepts of modernity, technology, democracy and their essential interaction—ones that are formed and maintained by the *status quo*. By focusing on sustainable development and using Critical Theory as a heuristic, we can see the multitude of historical, economic, social, and philosophic assumptions and players involved in the discussion. The result is that this critique should then open up the possibility to create a better normative and subsequently an improved, more democratic and prescriptive version of the concept.

Consequently, the chapters of this investigation are broken down as follows:

Chapter one which follows this introductory section introduces the theoretical framework of Critical Theory. It follows the line of reasoning taken by three of the most important thinkers of the field, Martin Heidegger, Herbert Marcuse, and Andrew Feenberg. Through the discussion and analysis of their particular versions of Critical Theory along with the work of their counterparts in Science and Technology Studies (STS), we will approach a poignant theoretical framework concerning agency and democracy which serves as the starting point for our *Question Concerning Sustainable Development*.

Chapter two follows a micro history of the founding of Greenpeace in Vancouver, Canada and seeks to show from this example how the environmental movement inherently goes beyond the confines of the environment and delves into the problematic of technical society, resting firmly on the push for a participative democracy, an alternate political system to the hegemonic and technocratic one we live in. This will be essential in helping us frame the discussion of our

Question Concerning Sustainable Development, for it will enable us to see what elements of the environmental movement were actually co-opted by the WCED, and consequently which were left out.

Chapter three theorizes the postwar development paradigm on which sustainable development is inherently fixed. It seeks to show how development is based on a reductionist science and a false promise of convergence by exposing its technocratic roots, and its scientistic bias along with its inherent contradictions.

Chapter four investigates the WCED's official version of sustainable development and shows how during its "hot phase" of creation, the Brundtland Report was the result of a struggle of interests, and not a neutral, value-free process. As a social construct and a normative technology, the Brundtland Report can thus be critiqued for delegating certain non-neutral political modalities into its legislation. Our *Question Concerning Sustainable Development* will examine these modalities under the light of the Critical Theory presented earlier in the thesis.

Through the path of this framework, then, this thesis attempts to participate in the unfinished history of the terming of sustainable development. It hopes to reframe the question of sustainable development under the very political framework of "who rules?" For, pared away from the complex context, at the heart of the debacle for environmental sustainability is this question: Should it be the "technocracy,"[1] along with its technological rationality, or the people and the non-

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[1] As I am basing my theoretical framework on the work of the Critical Theorists—in particular, Heidegger, Marcuse and Feenberg—, I am adopting the word "technocracy" as defined by the latter of these. However, Feenberg, who called it a "wide-ranging administrative system that is *legitimated* by reference to scientific expertise rather than tradition, law, or will of the people" (1999, p. 4), is not the first nor last to discuss the idea of a scientistic elite which governs contemporary—or advanced industrial, as Marcuse put it—society. No doubt there have been others who have come up with ways of describing this phenomenon.

The difficulty of coming up with a proper substantive emanates, as Neil Postman states, from the problem of which "...there is only a dull and stupid awareness of what it is—in part because it has no name" (1992, p. 20). Postman critiques the same phenomena, albeit his focus is entirely on the United States of America (US) and his emphasis is on education and communication, elements that I do not treat in this thesis. While his word "technopoly" is based on much the same factors as Marcuse's technocracy (Postman actually differentiates the two), I use Feenberg's "technocracy" to maintain a sense of continuity in my work out of the field of Critical Theory.

John Perkins puts forward another word for a tangent aspect of the same phenomena, calling it "corporatocracy." While his focus is on what he calls the three pillars of the system—big corporations, internationals banks, and governments (2004, p. 83)—, which has strong ramifications in my thesis, particularly in chapters 3 and 4, I have chosen not to use this word as it focuses on the business aspect of the scene and at the same time omits the key structure which

human actors on the planet who have agency over their lives? Philosophically speaking there is a powerful correlation between reductionist science whose political counterpart is technocratic, and a cybernetic, or environmental philosophy which bends towards participative democracy which are at play here. The thesis then is based on the search for democratic advancement through a reflection of what *is* and what *ought* to be for this complex issue that links mankind with his and her political and physical environment.

The thesis examines the possibility of forfeiting a hugely vertical, big-business, neo-liberal stance for a mediated, micro-level understanding of the issue—in short a participative democracy versus a representative one. Conceptually speaking, when this is done, we replace the motor of what makes technology instrumentalist for another that is horizontal in structure and incorporates reflexivity, symmetrical learning, and anticipation in design processes. The end result should be multi-lateral, so that "technological development processes can be shaped in such a way that social and technical aspects are symmetrically considered.... [w]hen design processes assume these features, fewer undesired (and more desired) effects will result" (Schot, 2003, pp. 274-275).

As one can see, despite my multilevel investigation, or perhaps because of it, I have had to make some hard choices in where to engage this debate. My goal is to provide an in-depth look at the relationship amongst democracy, technology and sustainable development through the position of the United Nations. As we have seen, in 1983 they commissioned the World Commission on Environment and Development (WCED) and with the 1987 publication of the WCED's Brundtland Report the UN would endorse this viewpoint in their active roll in world development. From this starting point, there are many lines of possible and even probable study. I

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the system is based on, science—in his particular case as we will see, the hypothetical results he was asked to manipulate from the science of economics, which derive from the technocracy that Marcuse critiqued.

A third possible choice of words I could have picked from is "Empire," put forward in Hardt and Negri's (2000) book of the same name. While there are many similarities between the position I am arguing and their Empire, I also resist the temptation to use that word as their focus is more on the idea of hegemony and combines both the technocracy that I am discussing as well as Perkins' corporatocracy. All this said, then, in keeping with the spirit of the Critical Theorists my focus in the fields of science and technology, and incorporating these contemporary additions to the idea of the phenomena, I forward the word "technocracy" to be used throughout this document.

will take this opportunity to deal with some of the rationale for choosing the path of investigation that I have taken.

Some rightfully question my beginning point—"why not the Greeks?" they say. And they have a point. The idea of questioning technology and democracy certainly did not begin with Heidegger. He takes up the discussion thousands of years after Aristotle's and Plato's work on the subject. While my basis is that Heidegger's work opens the debate in the contemporary forum of discussion, his position, that technology—that is to say the hardware of the scientific revolution—is not what it is thought to be, is the portal through which the discipline of Science and Technology Studies (STS) was born:

> We are delivered over to it [technological society] in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology. (1954, p. 4)

While I will engage in Heidegger's work in greater detail in chapter one, it is crucial to understand that his 1954 "Question Concerning Technology" is, for many, the foundational document of the discipline. What is more important is, as I will try to show, is that his ideas are still fruitful to understand the contemporary role of technology in society. As a starting point it enables me to both entrench my work squarely in the field of STS and begin questioning technology.

The technology I have chosen to question is the foundational document of sustainable development written by the WCED. While there are many technologies one could have examined, I have chosen this one due to its emerging global importance, its stabilization through historical consensus and my fascination with the issue. Thus, the question that I have been in search of for the past five years—how to get from Heidegger to Sustainable Development?

My work on this front has taken me on a wild goose chase working alongside some fantastic academics that were able to key in on my enthusiasm and stretch my mind with discussions, readings and ideas. While the question I ask in this thesis dates back to my own wondering that I had engaged in long before I began my PhD at the Instituto Tecnológico de Estudios Superiores de Monterrey at the Ciudad de México Campus (ITESM-CCM), it was my

late tutor, Dr. Keith Pheby, who opened the world of Heidegger to me and installed in me a passion for philosophic discussion. Dr. Horacio Cerutti-Guldberg from the Universidad Autónoma de México would also figure in prominently as an influence. His statement that to philosophize in the Latin American way is to think of reality from its history, both critically and creatively to transform reality[2] was one that marked my interest in understanding a different reality through the academia. His love of the world of ideas as part of a greater context and his generosity to share it with me as I audited his course at the Universidad Nacional Autónoma de México (UNAM) figure as important moments in my academic history.

Dr. Edna Suárez Díaz was the one to introduce me to the work of Dr. Andrew Feenberg and his friend Dr. Bruno Latour through a brilliant and extensive reading list complete with lively class discussions, no doubt a result of her passionate disposition. It was in Feenberg I could find both the trail of Heidegger—his 1999 *Questioning Technology* offered a wonderful complement to Heidegger's work—and theorized a way through the substantivist position that Heidegger represented as we will see in the following chapter. Furthermore, Feenberg's work also gave me a starting place for my innovation in the debate. For Feenberg, like Heidegger, questions the roll of technology in contemporary society; furthermore, he postulates it entering democratic society, claiming that "with the environmental movement in the lead, technology is about to enter the expanding democratic circle" (1999, p. vii). The point is an important one. My questioning of sustainable development, the document you hold in your hands, is my attempt at answering his postulation.

While studying with Feenberg, I was able to realize that the bridge between his enthusiasm for democracy from the environmental movement and Heidegger's pessimism of a technologically determined society is Dr. Herbert Marcuse. Student to Heidegger and teacher to Feenberg, the guru of the New Left and author of such foundational works as *One-Dimensional Man*, was perhaps more than anyone in his time, the philosopher who questioned technology and more importantly, technocracy, and provided a theoretical means of understanding and changing

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[2] From more on this, please see Cerutti (2000).

both. Like Cerutti and Feenberg, his work sits in the tradition of a few philosophers that believe that their work is not solely of comment and criticism, but of concrete actions.

My focus and justification, then, on the tradition of these Critical Theorists has implications. The most important is that there have been many other worthwhile philosophers in the tradition of STS and who have discussed the issues and principles of democracy and technocracy that are left out of the discussion. The reader of this thesis will note that there are omissions which I will discuss below.

There are numerous authors that are typically cited when encountering the discussion of technology. Going back chronologically, we could begin with Karl Marx. However, starting here brings back the inevitable discussion of which reading must one employ: the traditional essentialist reading of his work or the more recent anti-essentialist one.[3] A discussion on Marx also inevitably enters the messy relationship between technology and the economy, a fascinating topic which I will leave for others to investigate. Rather that go back in time from my starting point with Heidegger, I have chosen Marcuse and the New Left because they represent a contemporary response to the traditional view of Marx and technology, which is one of the reasons I decided to make this focus.[4]

German philosopher Jürgen Habermas also has a place in the debate, particularly due to his position as one of the more recent members of the Frankfurt School. He took Marcuse to task in his 1971 work entitled "Technology and Science as 'Ideology'." While the discussion is interesting, I have chosen not to re-examine Habermas for three reasons. Firstly, Feenberg, who studied under Marcuse at the time, makes a wonderful synthesis of the discussion.[5] A secondary,

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[3] While I have chosen not to re-enter the debate, those interested in following this fascinating discussion can turn to a classic in the field, Bimber (1990).

[4] Marcuse was one of the most powerful to theorize the issue of a "Left" which was substantially different than that Marx had envisioned. In his 1969 *An Essay on Liberation*, he posited that the key to this new situation was that there was a new subject of change which had a shifting centre—that is because the subject of change was consciousness itself: Under total capitalist administration and introjection, the social determination of consciousness is all but complete and immediate: direct implantation of the latter into the former. Under these circumstances, radical change in consciousness is the beginning, the first step in changing social existence: emergence of the new Subject. Historically, it is again the period of enlightenment prior to material change—a period of education, but education which turns into praxis: demonstration, confrontation, rebellion. (1969, p. 52)

[5] For those interested in the discussion please turn to chapter 7 of Feenberg (1999).

personal response to Habermas is that his work is based on norms and almost completely sidelines the concept of social change, an important element I feel missing. Thus, besides his theoretical limitations, Habermas' work does not lend itself to a philosophy of *actions*, which (as this thesis aims to show) I find an adequate approach, in particular when dealing with such an activist-driven movement as environmentalism and the search for "sustainable development."

Neil Postman is also an important thinker in the field. Postman's work, in particular his 1992 work *Technopoly: The Surrender of Culture to Technology*, offers a substantial basis from which to take off, but as his title connotes, his substantivist position—much like Heidegger—is, I feel, overly pessimistic for understanding the challenges of post modernity.[6]

Of course, my fellow countryman, Marshall McLuhan, has made some engaging and critically observant comments on the development of the technological sphere. However, as his specialty remains in the domain of technology of communications, while mine lies in the political sphere of democracy and the environment, I have decidedly not included him here. Please note, though, that there are strong similarities between the theories of Marcuse and McLuhan. Both take on a creative, questioning, rather than explanative role in their work. Both consider art as a heuristic in understanding the complexities of technology, and both were iconic figures in the academic scene: while McLuhan's work is often considered the cornerstone of media studies, Marcuse's theory was considered the basis of the New Left. The two lived at the same time, died within a year of the other, and were indelibly influenced each other.

For a more mainstream version of the state of the environment, please see the *An Inconvenient Truth* (2006) by Al Gore. More than being a well written and researched book and documentary film—one that no doubt helped Gore win the Nobel Prize of 2007—, the former Vice President of the USA's work provides living proof that the environment is indeed a very political sphere, which is the guiding principal of the thesis.

With this said, I feel that my methodological attempt to focus my questioning within the multidisciplinary current of STS and then in the area of the Critical Theorists fits in well with the

[6] A useful discussion of Postman's pessimism comes from Paul Levinson (1990), who, coincidentally, studied under both Postman and Feenberg. Levinson has also become a leading scholar on McLuhan's work in communications.

sustainable development debate. For as Feenberg states, "In choosing our technology we become what we are, which in turn shapes our future choices" (2002, p. 14). Thus:

> The effect of breaking away from the modernist management patterns will not be to bring technology "under control" so that it plays a less dominant role in society. Technology is not out of control. What will change is the form of control and how technology and development is played out. (Schot, 2003, p. 275)

By broadening our design processes, as Schot and Feenberg describe, we open ourselves to more options, more possibilities for a horizontal relationship with technology and our environment—both key elements in the search for a long-term future for the planet Earth and the species that live there, as well as the simple justification for this thesis.

CHAPTER 1. THEORETICAL FRAMEWORK: CRITICAL THEORY FROM ALDOUS HUXLEY TO ANDREW FEENBERG

Introduction

My title, *The Question Concerning Sustainable Development*, is a dead giveaway. And it is meant to be so. With these words one can identify my starting point, academic allies, framework and theoretical framework, all of which will be discussed in detail in this chapter. The title strongly suggests my allegiance to a movement called Critical Theory which finds its roots in Hegel, Marx and Heidegger and continued on to a greater or lesser extent by the likes of Herbert Marcuse, Jean-Francois Lyotard, Jacques Ellul, and contemporary authors including Albert Borgmann, Douglas Kellner, and Andrew Feenberg, amongst others.

To be clear, my title is a resonance of Martin Heidegger's "The Question Concerning Technology," a keynote paper in what today is called Science and Technology Studies (STS). The two along with a third title, Andrew Feenberg's 1999 book, *Questioning Technology*, reflect a similar ideology that was first outlined by Heidegger. Briefly put, the late German philosopher stated that we are active subjects in a meaningful world (in this case a technological world) which is to some extent dependent upon us. We are "Dasein," which can be roughly translated through an etymological breakdown of its two components, "Da" here/there and "Sein" to be. To be Dasein is to be a here/there being—someone having a world. According to Heidegger, reflecting and calling into questioning are fundamental reasons of Dasein in the world. This questioning aspect—in Feenberg, Marcuse and Heidegger's case on technology and in my case in a particular *modus operandi* of technology known as sustainable development—is but the first similarity amongst all of our work.

While already many names have been dropped in the previous paragraphs, the objective of this introductory section is to show the scope of the theoretical framework I am working with. I will outline firstly the common problems concerning technology addressed by these authors; and secondly I will investigate their and Marcuse's positions as key Critical Theorists. By exposing

their positions I can then show their convergences and eventual divergences on the issues concerning technology and this thesis.

Of course, there are many ways of entering into this discussion of technology. My focus is on technology and technocracy and thus I have opted to investigate the works of the Critical Theorists who I feel best appropriated and fleshed out the question concerning technology in these terms. The path that I have chosen (and which to some extent has chosen me) to follow involves the questioning of technology and results in a sequential path to the present from the foundational document of the field, Martin Heidegger's 1954 "The Question Concerning Technology." While many insightful authors will undoubtedly be left out the discussion due the parameters of technology and technocracy I am focussing, and my intention on giving as much space as I feel necessary for the ample discussion of their ideas, for those interested, please see footnote 1 of the introduction for further rationalization of the choice of my theoretical methodology.

The structure of the chapter follows the chronology of the movement by first stepping back into the time of Aldous Huxley's fictitious *Brave New World* dystopia. From there we will examine the currents involved in the debate on technology, which leads us to a study of Heidegger's attempt on it, then Marcuse's and finally Feenberg's. This will give us the theoretical framework that is necessary to move forward into my innovation on the subject which will be explored in the following chapters of this dissertation.

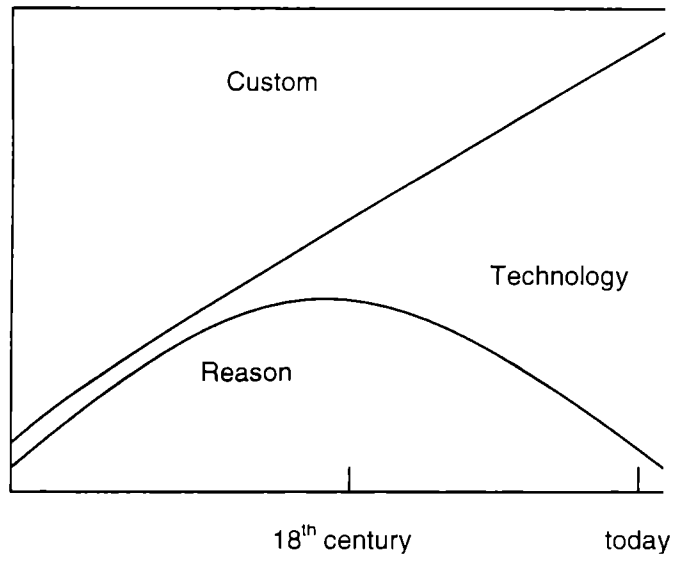
1.1 Huxley and Technological Dystopia

Perhaps the ideal starting point to enter into this giant knot of ideas and theory is the following graph, chalked up by Andrew Feenberg in a graduate study-room in Vancouver's Simon Fraser University's Harbour Centre Campus. It was sketched during a discussion of the underlying presupposition of a technological earth used by Aldous Huxley to create his dystopia in *Brave New World* (see Graph 1 below).

While the 'X' axis which shows a chronology of dates from the pre-Christian era to today remains self-explanatory, let me take a few moments to explain the interrelated variables of the 'Y' axis—Tradition, Technology and Reason.

Graph 1

Custom, Technology and Reason



Graph 1 underlies the growth of what Huxley promotes as the three competing and proportional principles of civilization—Tradition, Technique, and Reason—and their successive highs and lows over history. A brief look shows how Tradition and Reason were once much more active in social construction, while throughout modernity there has been an almost eradication of these two values, while an exponential increase of the Technological factor which marginalizes both Custom and Reason to the edges of civilization. Note that the values are not delineated by the lines themselves, but rather by the spaces between them.

Tradition

Tradition, according to its use in this graph relates to the group of customs which Huxley related to life on the Indian Reservations of the old world. In the earliest of times, it was the largest proportion of social construction. As all Y-axis variables, it has two different sides that can be roughly described as positive and negative. On the positive side, Tradition composes a group of societal elements that while not giving power or domination over things, provides context and meanings for what things are. Traditional society's other pole is one that limits freedom in

numerous ways, one of which—marginalization—Huxley expounds upon in the life story of John the Savage. Since traditions have trouble with rationalization, questioning is also often suppressed by traditional culture, and thus tradition often does not deal well with the "other," that is to say comparison with other cultures.

Reason

Reason, which in Huxley's graph grows to its high point in the 18th century with the Enlightenment and the age of science, disappears quickly thereafter. Reason as such is much more than logical thinking. It is thinking that helps us make free decisions, ones that destroy traditional thinking, which we have seen historically with the application of Reason to cultural institutions, one which has resulted in revolutions. While Reason showed that society should promote the happiness of individuals and protect them, Huxley's Brave New World paints a slight modification of this premise; it is a universe where world controllers—technocrats—chose between these factors. The result is a world where one can get either freedom or happiness. Brave New World is a place of operationalized happiness and only the most limited and controlled freedom. Rather than place Reason at the locus of society, it makes a trade-off for a technologically dominated society.

Technology

Technology, unlike Tradition and Reason, which is the subject of this thesis, has a much longer, more complex description which we will develop carefully over the course of this chapter and thesis. In Huxley's view it offers a way of understanding things through knowing the way things work. It enables a control of objects through a mastery of their laws (but it is not about changing laws!). This control is strengthened by the fact that the subject is outside of the world or system he controls. It takes its metaphor from a Western God which is external to its system, a prime mover. Its strength is in its capacity to control, and its weakness is its goals are illogical since by definition they must come from outside the system of technique. Technical goals are

contestable, controversial, and are much weaker than tradition's goals since all they can hope to do is seek greater control, greater efficiency, never answering to the question "what for?."

Thus at its logical conclusion there is the fear of nihilism, nothingness, and unjustifiable control. Huxley's technical society is directly associated with Marcuse's "one-dimensional" society and also quite accurately with what Heidegger, the former's teacher, called "*Gestell*" or "Enframing." The essence of this factor is given by both of these as a merely technical "revealing" in the Heideggerian sense.

The function of a singular essence and rationality of the post-national dilemma central to the idea of post-modernity has likewise been well theorized by Michael Hardt and Antonio Negri in their book, *Empire*:

> The concept of Empire is presented as a global concert under the direction of a single conductor, a unitary power that maintains the social peace and produces its ethical truths... Empire exhausts historical time, suspends history, and summons the past and future within its own ethical order. In other words, Empire presents its order as permanent, eternal, and necessary. (2000, p. 10)

The above graph shows the growth of this latter technical factor to the point that once placed in the context of advanced industrial society it is almost impossible to see beyond it. Huxley's point was the near-absolute spread of technological rationality is becoming "naturalized" in modern society. Brought to its logical conclusion, technological society evolved into a very illogical dystopia whose foundational premises included a controlling scientific meritocracy that was based on birthright, an outlawing of family, release from nihilistic responses was administered with a pastille of soma and free speech was reduced to table talk—for quite simply, in an overarching technological society there was nothing left to discuss. Spendy entertainment which provided "happiness" to the population was the only real attainable goal for the common person, though the concept itself had become operationalized and was commodified with a high price tag.

Despite the literary license used by Huxley, modern society thus understood enables a grasp on the problematic of technical society. This was this precise state-of-affairs that Heidegger

faced when he began working on the "Question Concerning Technology." The graph thus becomes a useful starting point for the philosophies based in the Critical Theory tradition. While all three philosophers—Heidegger, Marcuse and Feenberg—I will be discussing use an approximation of this in their work, they differ on the essence of technological society, what drives it forward and how it can be countered.

Chart 2

The Varieties of Theory[7]

Technology is:	Autonomous	Human Controlled
Neutral (Complete separation of means and ends)	Determinism (i.e. traditional Marxism)	Instrumentalism (liberal faith in progress)
Value-Laden (means form a way of life that includes ends)	Substantivism (means and ends linked in systems)	Critical Theory (choice of alternative means-ends systems)

Simplifying tremendously, the theoretical variety that has unfolded over the long history reviewed above can be represented in a table by two axes. The theories differ with respect to the role of human action in the technical sphere, and the neutrality of technical means. Common sense assumes both the possibility of human control and the neutrality of technology. Deterministic theories, such as traditional Marxism, minimize out power to control technical development, but consider technical means to be neutral insofar as they merely fulfill natural needs. Substantivism shares determinist scepticism regarding human agency but denies the neutrality thesis. Ellul, for example, considers ends to be so implicated in the technical means employed to realize them that it makes no sense to distinguish means from ends. Critical theories, such as Marcuse and Foucault's left dystopianism, affirm human agency while rejecting the neutrality of technology. Means and ends are linked in systems subject to our ultimate control. This is the position defended here, although I work it out rather differently from Marcuse and Foucault.

1.2 The Positions Concerning Technology

Andrew Feenberg has sketched yet another useful (albeit simplified) graphic describing the importance of this question of technology which has traditionally divided scholars and philosophers. As we can see in Chart 2 above, the concept of natural law falls on the 'X' axis,

[7] The chart and description are taken directly from page 9 of Feenberg (1999).

which posits an autonomous technology (coming from a natural law) versus a human-controlled or socially constructed one. On the 'Y' axis we find a neutral versus value-laden technology, another crucial split in the debate. While this model is certainly oversimplified it does a great deal of elementary work at splitting apart the groups involved in the technology debate. In the end, there are no fences to sit on. Synthesis is not possible. One has to pick sides. Now let me explain the choices.

The Common Sense Approach

Traditionally, the approach to technological society was as a neutral system that was essentially a means to an end, it was neither a good nor a bad. Rather it was considered as a neutral tool or good that was to be used by whoever wanted to use it. It became naturalized into society as a natural good, one that existed externally to man, much as the economy was seen as a natural law prior to Marx.

The philosophic turn in terms of technology took place with Heidegger who, once taken to questioning, realized that it was quite something different than what common sense would consider.

1.3 Heidegger's Approach

The text, *The Question Concerning Technology*[8] remains to many academics as Heidegger's major statement on technology and the touchstone of the debate on the subject. The objective in this subsection is to analyze the text using both my and other authors' interpretations of it. To do so, I will be borrowing from Critical Theorist, Andrew Feenberg, and Berkeley Phenomenologist, Hubert L. Dreyfus. Both are important Heideggerian scholars yet they have an important divergent idea on the reading that roughly approximates the two major interpretations of the text and author. Their perspectives will help 1) illuminate the problem of technology; 2) overview Heidegger's proposed solution to it; 3) reveal the contentious aspects of his work; and

[8] I am quoting from William Lovitt's translation in *The Question Concerning Technology and Other Essays* ([1954] 1977).

4) show the portal through which further academic research has continued in the field of Critical Theory which is the current that my work follows.

To accomplish the task of the synthesis of their work, I will first outline the basic premise of Heidegger's text which Dreyfus and Feenberg agree upon, and then visit the point of contention between these two scholars, which essentially boils down to a disagreement about the possibility for agency that Heidegger enables in the face of technological society. I will conclude the subsection by summing up some of the elements that Critical Theorists have absorbed from the text and used to continue the tradition of Critical Theory and, on the other hand, left behind. This will offer a gateway into understanding the premise of the next generation of Critical Theorists, namely Herbert Marcuse.

Heidegger states the purpose of his text writing, "We shall be questioning concerning *technology*, and in so doing we should like to prepare a free relation to it" (1954, p. 3). As we have seen earlier on in this chapter, Heidegger's starting point is an existentialist position which obligates the *Dasein* to bring its environment into question. In the case of this text, he takes a step into discovering the essence of technology, one which he states has nothing to do with technology itself.

This can be considered his first contribution to the debate; for he refutes looking at technology merely as a means and a human activity, and thus banishes "current conception of technology." According to Heidegger, this faulty, "instrumental and anthropological definition of technology" (1954, p. 5) presupposes neutrality; a position which he states is misleading. He warns:

> We are delivered over to it [technological society] in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology. (1954, p. 4)

The point he makes is that, "According to ancient doctrine, the essence of a thing is considered to be *what* the thing is" (1954, p. 4). Thus, technology is what its essence is, not what it is currently conceived as. And with this statement his argument goes immediately to an

ontological level. To clarify what he means by the essence or ontology of technology, Heidegger lists the following five standard (mis-) conceptions of technology[9] as:

(1) Modern technology is a means invented and produced by humans, i.e., an instrument for the realization of industrial ends, in the widest sense, which have been set by humans.

(2) As such instrument, modern technology is the practical application of modern natural science.

(3) The industrial technology which is grounded in modern science is a special province within the modern cultural fabric.

(4) Modern technology is the constant, gradually increased development of the old manual technology according to the possibilities offered by modern civilization.

(5) Characterized as such human instrument, modern technology requires that it be brought under human control, that humans manage it as their own product.

Heidegger is concerned that each of these may be deemed "correct," yet at the same time, none of them are "true." This distinction, between correctness and truthfulness, becomes a key point in understanding the concept of technology, as we will shortly see.

Accordingly, he decides to trace a history of the western concept of essence from the Greeks to the present. This has significant implications. To begin with, it shows the awakenings of a non-deterministic approach to the problem of technological society[10]—a determinist view is necessarily *a priori*. In theory, this will enable agency on the part all actors, unlike the progressivist and instrumentalist common-sense conceptions of technology. Dreyfus comments on this aspect:

> To make this disassociation, Heidegger holds one must rethink the history of being in the West. Then one will see that although a technological understanding of being is our destiny, it is not our fate. That is, although our understanding of things and

[9] These five conceptions come from a separate piece which also discusses technology, "Traditional and Technological Language," translated by Wanda Torres Gregory in the *Journal of Philosophical Research*. I feel they offer a more complete description than is found in "The Question Concerning Technology" and so I have taken the liberty of stating them here.

[10] Although Heidegger's attempt at a non-positivistic approach begins critically, his solution falls short of a Critical Theory to technology, and rather drops back into a sphere void of human agency in the face of the problem.

ourselves as resources to be ordered, enhanced, and used efficiently has been building up since Plato and dominates our practices, we are not stuck with it. It is not the way things have to be, but nothing more or less than our current cultural clearing. (1995, p. 102)

Heidegger sees technology as a cultural form and he considers that we get closer to the essence of technology through a kind of knowing or revealing that is part scientific, part technological. Heidegger's starting point is that there is both a *means* and *ends* involved in the technological question. For as he states, "Wherever ends are pursued and means are employed, wherever instrumentality reigns, there reigns causality" (1954, p. 6), and "what technology is, when represented as a means, discloses itself when we trace instrumentality back to fourfold causality" (1954, p. 6).

Thus, to discover the essence of technology, in his text he underscores how the Greeks, through Aristotle, for their part, understood four causes of being. They are linked:

> (1) the *causa materialis,* the material, the matter out of which, for example, a silver chalice is made; (2) the *causa formalis,* the form, the shape into which the material enters; (3) the *causa finalis,* the end, for example, the sacrificial rite in relation to which the chalice required is determined as to its form and matter; (4) the *causa efficiens,* which brings about the effect that is the finished, actual chalice, in this instance, the silversmith. (1954, p. 6)[11]

He compares this to our modern thinking where he considers there is only one commonsensical cause—bringing about, the *causa efficiens* or efficiency. Today's simplified approach to cause—that the "artisan" or person who brings the artefact into being is deemed the maker, he states, is dangerous. In Aristotelian times there were four co-responsible causes that

[11] To explain briefly, Heidegger means man is but a co-responsible actor. For in the Greek perspective, final, form, material and maker causes are also responsible. In this case man is not the only maker, as all elements that are responsible for the creation of the artifact. Form, tradition, purpose all act through him. Thus the human is but an agent, not the maker. The maker is part of the purpose. This reduction of the maker as part of the whole gets us to something deeper. Nature reveals itself by itself. Artifacts are an extension of nature; they are somehow a continuation of nature. Perhaps an appropriate metaphor is a garden as we'll see in the following footnote.

took part in the conception of the natural and artificial world. And still today, according to Heidegger, it is necessary that we understand that all of these elements are responsible for the creation of the artefact. Form, tradition, purpose all act through the human agent. Therefore the maker is but an *agent* of transformation, not the *maker*. He/she is but part of the larger purpose and revealing of an object. Objects themselves necessarily have an inherent ability to expose themselves.

This reduction of the role of the human agent as part of the whole gets us to understand the concept of Truth as Heidegger sees it. For through the Heideggerian lens, nature reveals itself by itself. Yet, there is an agency in the natural world that today's lens hides. This he considers when he states that, "The question concerning technology is the question concerning the constellation in which revealing and concealing, in which the coming to presence of truth, comes to pass" (1954, p. 33). Truth, or what we take for truth, then, is what is at stake here.

Heidegger's approach retakes the Greek position that artefacts are an extension of nature. They are a continuation of nature expressing itself.[12] Clearly, through this approach, the artisan is the midwife of nature, not the builder as is in modern society. He is but one element that can "*Her-vor-Bringen*" (bring forth). The classic Greek Truth—*aletheia*—meant a revealing. Yet over time, it was limited by the Romans' *veritas*. "We say "truth" and usually understand it as the correctness of an idea" (1954, p. 12); this *representative* limitation is placed by technological society, according to Heidegger. Philosophically speaking, this thinking comes from Platonic ideas, which states that there are ideal forms of things—that concepts pre-exist their physical forms. Plato was inspired by the idea and impossibility of two things being equal. Nothing is exactly the same or equal. The artefact presupposes the idea. And the idea is the ideal.[13]

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[12] There has been some speculation that Heidegger got this metaphor from his gardening. The potential is there in gardening—you help the flowers along, but the relationship is symbiotic, for the flowers and plants have the inherent possibility to grow. A human agent can only participate in the growing of the flower externally. In common parlance, the thing does its thing.

[13] The difference between the perfect-ness or universality of the idea and the imperfection of the resulting, actuality is a key idea throughout the tradition of Critical Theory. It is important because through this ideal lens, actuality always errs towards insufficiency in comparison to its ideal. This has powerful ramifications.

Through this metaphysical structure, Heidegger shows technology as much more than a naturalized external variable, rather it becomes an internalized, value-laden (that is, a means which forms a way of life that includes the ends) system, a world view. He states,

> Technology is therefore no mere means. Technology is a way of revealing. If we give heed to this, then another whole realm for the essence of technology will open itself up to us. It is the realm of revealing, i.e., of truth. (1954, p. 12)

Yet as Heidegger clearly states, "For that reason the merely correct is not yet the true. Only the true brings us into a free relationship with that which concerns us from out of its essence" (1954, p. 5). The problem with technology is that it, as *a* manner of revealing, poses as *the* truth or the *ideal*, when it is merely "correct."

Accordingly, in every revealing there is a concealing. That is to say, that the object has a part in its own revealing and under no circumstances and under no lens is the entirety of an object visible or obtainable. Quite literally this means that any relationship with an object can be seen in an erotic manner, of showing and not showing, a never-ending process of interactive learning. This points to an interrelationship between subject and object, completely dismissed in the technological paradigm.

Using Aristotelian universals, Heidegger states quite simply that one can never know the whole of an object. It remains constantly greater than one can imagine. Because of this, to Heidegger a traditional world[14] is better because the human is more multifaceted. This point is something his critics have taken up, as it leads towards a conservative ideology. We will examine this critique at the end of this subsection.

Heidegger's metaphor of truth resides in the concept of revealing. Technological society, as opposed to traditional society, reveals through "challenging forth" through "unlocking" and "exposing." Yet there is a perpetual chain that develops from this manner of revealing.

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[14] For the purposes of understanding this text, a traditional world can be seen by Heidegger's insistence of the ancient Greeks, who, through their fantastic and eroticized art forms, were able to understand the world more complexly than we do today or at least did during his time. The concept of a live art scene was crucial to Heidegger who was dissatisfied with the commodification of art in the post war era, which accounted for a loss of its integral, world-creating value.

> Unlocking, transforming, storing, distributing, and switching about are ways of revealing. But the revealing never simply comes to an end. Neither does it run off into the indeterminate. The revealing reveals to itself its own manifoldly interlocking paths, through regulating their course. This regulating itself is, for its part, everywhere secured. Regulating and securing even become the chief characteristics of the challenging revealing. (1954, p. 16)

From here, Heidegger leads us to his conclusion of the essence of technology is technological society's "*Gestell*," or "Enframing." It forces a culture of control that culminates in the control of it apparent masters—the humans themselves.

Heidegger explains:

> Because the essence of modern technology lies in Enframing, modern technology must employ exact physical science. Through its so doing, the deceptive illusion arises that modern technology is applied physical science. This illusion can maintain itself only so long as neither the essential origin of modern science nor indeed the essence of modern technology is adequately found out through questioning. (1954, p. 23)

Now the reduction of the causality to a sole factor, the *causa-efficiens* means that man makes the world, and Truth depends on him/her. This is where the essence of technology is so different from technology *per se*. The essence, which Heidegger states quite clearly is "*Gestell*," or "Enframing," means, "the gathering together of that setting-upon which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve." (1954, p. 20) Man, the animate creator of Truth, through this faulty technological lens therefore plays the most important role of modernity, as Huxley pointed out with the World Creator.

Feenberg notes that "It forms a culture of universal control. Nothing escapes it, not even its human makers... Everything loses its integrity as a part of a coherent world and is levelled down to an object of pure will" (1999, p. 3). What is implicit from Heidegger's perspective is that the following step can be abstracted from this situation, similar to Huxley's dystopia: not all men

are created equally. Subsequently only the best fit should rule. There is an important link here with the point of representative democracy, one that has wide-ranging implications.

At this point, it is clear that the separation of the four causes means that modern Truth is but a fraction of what it meant to the Greeks, thus the separation between Truthfulness and Correctness. To show what he means, Heidegger quotes Max Planck's famous remark, "Real is that which can be measured" (cited in Heidegger, 1998, p.136), as an entry into the tangle of technology. For through this statement we can see an emerging factor of technology, one that sees the measurability of usefulness in an object to the subject, which translates into realness or Truth. This in turn translates into what he calls the "inexorability of its limitless reign" (1998, p. 137). This simplifies Truth, to what is merely "correct." As Heidegger sums up succinctly, Enframing—the modern style of putting all objects into standing reserves and the very essence of Technology—conceals that revealing which, in the sense of *poiesis,* lets what presences come forth into appearance," and thus "blocks the shining-forth and holding-sway of truth" (1954, p. 27).

Taken to its conclusion, Heidegger fears that man is destined to understand Enframing as the *only* kind of revealing, or truth, one where all is relegated to a Standing Reserve, a system component. Objects have lost all dignity of their being and assume what Heidegger calls the property of "*gegenstand*" or objectlessness. As Heidegger states, humans are thus forced into the system as objects, where they feel powerless to this demand and become doomed by it. A society enslaved by its technological creation is the logical end of technological society.

The real danger is not, then, the atom bombs of the postwar world that Heidegger wrote in. Rather it is that humans will forget who they are. They will on one hand fantasize that they are masters of the earth, and on the other, they will despair that they are but equipment, standing reserves. Dreyfus puts it succinctly, stating that the danger is "not the destruction of nature or culture, but a restriction in our way of thinking—a levelling of our understanding of being" (1995, p. 99).

Thus, according to Heidegger the only way to "fix" technology is *not* to look at it as a problem that needs fixing; for that is the very essence of the culture of Enframing that technological society has left us with. Heidegger's solution is to look at life through Greek

eroticism, roughly what we call today artistically. Dreyfus sums it up well when he states: "The issue is the saving of man's essential nature. Therefore, the issue is keeping meditative thinking alive" (1995, p. 104).

Up to this point in the text, there is little disagreement amongst scholars. However, what meditative thinking and if it offers any agency in response to the technological juggernaut Heidegger warns us of has become a long debate amongst scholars clouded by a murky, inconclusive language used by Heidegger and based on varying interpretations of a series of texts that are infamously difficult to understand.

There are two important instances which affect Critical Theorists and Heideggerian scholars[15] that are commonly cited and worthwhile visiting here: 1) the conclusions at the end of this text; and 2) his conclusion in the famous interview with the editors of *Der Spiegel*, published posthumously on his demand, when he states "Only a god can save us."[16] Both of these interrelated instances affect the critical issue of agency. This is to say they make the divide between an essentialist or determinist philosophy where there is no agency, and a Critical Theory, where there is. The debate therefore centers whether there exists agency in Heidegger's work. Despite the academic dispute, there is, importantly, an overriding consensus on that both sides of the argument, in this case represented by Dreyfus and Feenberg. They both agree that agency is necessary for a reasonable philosophy of technology as we will shortly see.[17]

Below I outline the basic premises of the two sides of the argument. My point in showing

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[15] Much has been written about Heidegger's baffling conclusions. Those interested in discovering more on the subject can read Paul Edwards (2004).

[16] Feenberg's cryptic last sentence, "Only a god can save us," comes from *Der Spiegel*'s September 23, 1966 interview with Heidegger, published posthumously under Heidegger's strict orders, on May 31, 1976. The segment taken from below was taken from by Alter & John D. Caputo's (1992) translation.

[17] Since the concept of agency, the possibility for mankind to have some sort of agency to affect technological society in which he/she participates, is the key question here, and not the question if Heidegger has it or falls on the deterministic side of the argument, I will only outline the two arguments by the better known representatives of either camp. The argument is a fascinating and complex one, and has been the foundation and fodder for much discussion and academic research. Suffice it to say that my position is non-determinist, and thus I agree with the Critical Theorists that agency is necessary. Because of this I will not take sides on the debate as to whether Heidegger believed in agency. The point of this section is solely to underscore the necessity of the concept of agency in the technological debate.

the argument is, like Feenberg and Dreyfus, to demonstrate that agency is not only possible in the face of technological society, that it is necessary. A philosophy of technology must take this into account. Through this lens, an understanding on Heidegger's text becomes important first step to questioning technology and, as we'll soon see, questioning sustainable development.

Heidegger's conclusion in "The Question Concerning Technology," states:

> "Through this [questioning concerning the constellation in which revealing and concealing, in which the coming to presence of truth, comes to pass] we are not yet saved. But we are thereupon summoned to hope in the growing light of the saving power. How can this happen? Here and now and in little things... (1954, p. 33)

It is often matched with his statement during his life's end interview with the editors from *Der Speigel* magazine, where he divulges his ultimate polemic view that:

> ... philosophy will not be able to effect an immediate transformation of the present condition of the world. This is not only true of philosophy, but of all merely human thought and endeavour. Only a god can save us. The sole possibility that is left for us is to prepare a sort of readiness, through thinking and poeticizing, for the appearance of the god or for the absence of the god in the time of foundering *Untergang* for in the face of the god who is absent, we founder. (1966)

Of the two readings of these two conclusions, Dreyfus argues that Heidegger offers some form of agency or non-determinism to the problem by looking at life through the erotic lens. He states that agency is possible if you can semantically turn Heidegger's external god into an internal (a local community of which the agent is part of) god. He makes the transition between the two in the passage below:

> Each local community still needs its local god—its particular incarnation of what the community is up to. In that case we are again led to the view that releasement is not enough, and to the modified Heideggerian slogan that only some new *gods* can save us. (1995, p. 106)

To illustrate what he means, he brings up Woodstock as an example of this god, stating:

> A hint of what such a new god might look like is offered by the music of the sixties. The Beetles, Bob Dylan, and other rock groups became for many the articulation of new understanding of what really mattered. This new understanding almost coalesced into a cultural paradigm in the Woodstock Music Festival, where people actually lived for a few days in an understanding of being in which mainline contemporary concern with rationality, sobriety, wilful activity, and flexible, efficient control were made marginal and subservient to Greek virtues such as openness, enjoyment of nature, dancing and Dionysian ecstasy along with a neglected Christian concern with peace, tolerance, and love of one's neighbour without desire and exclusivity. Technology was not smashed or denigrated but all the power of the electric media was put at the service of the music which focused on the above concerns. (1995, p.106)

The position is an interesting one, for it states that technology can be used for liberating, counter-hegemonic activity, that its essence, therefore, is not Enframing. This implies that technology *per se* is not the root of the problem, rather how it is managed. This point of view is shared by Feenberg and the Critical Theorists, but they get here not through what they consider a convoluted reading of Heidegger as is deemed Dreyfus' account.

Thus Dreyfus' claim for agency within the Heideggerian discussion comes in contrast to Feenberg's approach on Heidegger's need for a god. Feenberg questions if one can really make the leap to an anti-essentialist philosophy from an essentialist philosopher, one who stated clearly that there was but one essence of technology, and then said we need to know our enemy by keeping an open mind, and then prayed for a god to save us. Feenberg does this by applying less literary license and offering a contextual reading which applies a straight understanding of god, that is to say he reads it as an external force that comes with the "saving power," an oft-repeated phrase in Heidegger's writings, particularly "The Question Concerning Technology."[18]

[18] Heidegger uses the phrase "saving power" 22 times in the final seven pages of "The Question Concerning Technology," in one of these he states: "But we are thereupon summoned to hope in the growing light of the saving power" (p. 33), as if it were what the west has conceived as messianic power that exists and will come to save.

Feenberg's discussion on Heidegger also rests on showing how the German professor "holds that there is one and only one "essence" of technology and it is responsible for the chief problems of modern civilization" (1999, p. 3.). This essence, as we have seen in the discussion above, is "Enframing." Feenberg continues stating that, "what makes substantivism so very gloomy, where determinism started out as a cheerful doctrine of progress, is the additional assumption that technology is inherently biased towards domination" (1999, p. 3).

Feenberg adds up the clues in Heidegger's texts and lifework. Although outwardly critical towards technological society, according to Feenberg, Heidegger's reliance on an external is thus unacceptable. For it, "ends up agreeing implicitly with technocrats that the acting struggles in which people attempt to influence technology can accomplish nothing of fundamental importance" (1999, p. xiv). This is the essential problem with the substantivist theory, which, according to Feenberg:

> ... is characterized by an expansive dynamic which ultimately overtakes every pretechnological enclave and shapes the whole of social life. The instrumentalization of society is thus a destiny from which there is no escape other than retreat. Only a return to tradition or simplicity offers an alternative to the juggernaut of progress.[19] (1991, p. 7)

Iain Thompson (2000) has taken on the task of trying to revindicate Heidegger's ontological approach. To do so he has sided with Dreyfus and engaged in a lengthy debate with Feenberg. He deconstructs Feenberg's argument concluding that "Heidegger appears to be a technological essentialist, but of a largely unobjectionable variety."

In his response to the Thompson paper, Feenberg agrees that Heidegger was not always fatalistic; stating that he once held the hope of radical change, but there was a historical context in which this happened. It is something very well documented.[20] Moreover, by the time he wrote

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[19] For those looking at a longer description at the anti-substantivist argument, please turn to Feenberg (1991).

[20] There has been a well-known affiliation between Martin Heidegger and the Nazi party. This aspect of his conservative nature could easily make the foundations for a thesis in itself, and certainly has not gone untreated by the academic community. Rather than treat this facet

"The Question Concerning Technology" in 1955, he had become disillusioned with his time and place in history. This coincides with his attitude in his final interview. Feenberg's response:

> Unfortunately, this hope was linked with Nazism, the failure of which Heidegger himself eventually recognized. His later thought proposes not technological activism but *Gelassenheit*, translated as "releasement" although the usual meaning is "calmness" or "composure." We are to use technology indifferently, without ourselves being mobilized by the technological enframing. I find no trace of the early activism here at all. (2000)

Feenberg continues: "Heidegger was himself far more deeply touched by modern nihilism than Thompson is willing to concede, far more so than Dreyfus." Taking from the text "The Question Concerning Technology," it is clear that:

> Nothing in his world escaped the enframing sufficiently to constitute a new "god." This is why after his Nazi fling he never specified the content of his nebulous hopes, certainly not in terms of a concrete historical alternative such as Woodstock. (Feenberg, 2000)

Through this discussion, it can be seen that the Dreyfus side of the debate relies on a significant stretching of Heidegger's concept of god, and a concrete and liberating hopefulness and agency very difficult to pull out of his readings. Certainly, Heidegger's language is complex and there is traditionally a certain amount of latitude of discussion on its meaning, but Dreyfus' position exceeds the limits. His explanation of doing "little things" also comes up short. That reduction of manoeuvrability within the great problem of technology is the logical end of substantivist philosophy as we have seen. Moreover, it seems even more improbable that a post-Nazi, hippy-based event like Woodstock was what Heidegger had in mind when he said, "Only a god can save us."

The root of the disagreement on the text falls into questioning what Heidegger meant by entering into a free relationship with technology. At its limit, technological control means man is

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superficially in this text, I suggest for anyone interested in examining this relationship to turn to Tom Rockmore (1991).

100 percent in command of his life. At the other side of the continuum, we have no control. The substantivist argument would say that we are steadily going towards control. More control makes us less human. Technology as we have seen from the substantivist point of view is based on domination, so we move back and forth between total power and total powerlessness.

Feenberg's reading of Heidegger is that total control is in the planning. Feenberg and the Critical Theorists are sceptical about the ramifications of this. If we are simply to keep a positive attitude and wait for an outside force, then what good is changing your attitude? You have already dropped down and accepted the determinist position, thus the Heideggerian position "Only a god can save us." This, perhaps the most contested aspect of his philosophy of technology, gives little hope to humanity or for a critical response to technology. But all is not for naught in the Dreyfus discussion. The concept of a technology brought under a participative democratic control appears for the first time. This is a crucial element to the greater discussion on technology. Not surprisingly, this is the starting point of Marcuse's, one of Heidegger's prodigy students, discussion on technological society, which he elaborates in his 1964 book, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, which we will be following in the next subsection.

However, before moving on to Marcuse, there are still several conflicts in the reading of Heidegger that the Critical Theorists would take issue with. One important one is the perceived conservative trend of the author throughout his work to glorify the past and demonize the present and future. An example in "The Question Concerning Technology" states, "The earth now reveals itself as a coal mining district, the soil as a mineral deposit" (1954, p. 14). And:

> In Greece, at the outset of the destining of the West, the arts soared to the supreme height of the revealing granted them. They brought the presence [*Gegenwart*] of the gods, brought the dialogue of divine and human destinings, to radiance. And art was simply called *technē*. It was a single, manifold revealing. It was pious, *promos,* i.e., yielding to the holding-sway and the safekeeping of truth.... What, then, was art—perhaps only for that brief but magnificent time? (1954, p. 34)

This coincides well with the kind of statements Heidegger had made throughout his life. For example, he laments the influx of television on the Schwartzwald peasants:

> Hourly and daily they are chained to radio and television.... All that with which modern techniques of communication stimulate, assail, and drive man—all that is already much closer to man today than his fields around his farmstead, closer than the sky and the earth, closer than the change from night to day, closer than the conventions and customs of his village, than the tradition of his native world. (1973, p. 28)

Dreyfus is correct that Heidegger does not create an all out revolution against technology, for as Heidegger states, "There is no demonry in technology" (1995, p. 28). Yet his solution is to sit still, have an open mind and wait for something to save us. Feenberg takes issue with this and states that following Heidegger's logic leads to no way out of the problem; but there is a way out. Heidegger forgets and omits the critical assimilation of all lower-end actors and micro-activities in the field of technology whose interactions with the technical world never quite fit the roles presumed by the world creators. The result, then, while opening the discussion to technological society, Heidegger's macro-position closes it almost immediately as it presupposes that technology is autonomous and thus determining.

This root which invariably leads to Heidegger's conservatism[21] comes from what can be called a meta or macro-theorizing. Within the clearing that he sets up, Heidegger's gaze comes only from the top, and is so abstract that it loses touch with its subject; in the latter case the actual lives of the Schwartzwald peasants. Instead, his position of a relative loss of human agency in reaction to the power of technological Enframing is reduced. He states we "are thereupon summoned to hope in the growing light of the saving power. How can this happen? Here and now and in little things" (1954, p. 33). This proposal, sufficient for Dreyfus, and insufficient for

[21] To reiterate from an earlier footnote, there has been a well-known affiliation between Martin Heidegger and the Nazi party. This aspect of his conservative nature could easily make the foundations for a thesis in itself, and certainly has not gone untreated by the academic community. Rather than treat this facet superficially, I suggest for anyone interested in examining this relationship to turn to Tom Rockmore (1991).

Feenberg and the school of Marcusian Critical Theorists becomes the valve that separates the two major schools of thought on the piece.

Saying that it is enough doing "little things" is, theoretically and practically speaking, an ambiguous proposal. What does "little things" really mean? What do they entail in Heidegger's perspective? Obviously with the depth of the debate, what is clear is that Heidegger's wording is in the very least too vague for the job.

The reasons for Heidegger's position could be taken from a look at his place in history. Authors like Feenberg have suggested that it was a question of metaphors. Heidegger lived at a time of war. For the first time in history, there was no line between the soldier and the civilian (the Allied fire-bombing of Dresden, the Atomic bombs in Hiroshima and Nagasaki offer some examples). Huge electrical grids were being extended over society. Efficiency was driving much of the time and the little guy in society had to react to these overarching technologies—the technologies of development as we will shortly see.

On the other hand, Heidegger was not exposed to the cybernetics of the Internet and user-controlled technologies which offer more opportunity of self-liberation. The essence of technology, today, certainly is not restricted to efficiency as he claimed it was during his time. Feenberg's point is that 50 years later, technology is much more complex than it was. There is more feedback. Feenberg says that we cannot say there is but one technological world. "The "essence" of actual technology, as we encounter it in all its complexity, is not simply an orientation toward efficiency. Its many roles in our lives cannot be captured so simply" (1999, p. x).

This is a crucial juncture for the thesis, since the stance I am taking rejects Heidegger's conservative approach to technology. Certainly there is something to his warning of an omnipresent technology, but I agree with the group of Critical Theorists who believe that, in the words of Johan Schot from the Eindhoven University of Technology in the Netherlands, "Technology is not out of control. What will change is the form of control and how technology and development is played out" (2003, p. 273).

To conclude on Heidegger's take on technology we can see that despite some of the shortcomings of the text, Heidegger opens the Pandora's Box on technology. His premise is that through philosophy and thinking we can free man from the cultural knot of technology. This is the basic premise of the tradition of Critical Theory. Heidegger's followers and critics would now try to rescue the critique from its determinist leanings and find a way out of the essentialist puzzle that they had been left with. Marcuse, who we will now visit, was the first to do so.

1.4 Marcuse's Approach

In this subsection, I will introduce Herbert Marcuse's response to his teacher and show his stance to the question concerning technology. I will be using Douglas Kellner and Andrew Feenberg—both pupils of Marcuse who have remained in the tradition of Critical Theory—to comment and clarify the meaning of his work. The reason for the choice of these two analysts is straightforward: they are the two leading scholars which work on Marcuse's teachings. Kellner and Feenberg also are two of the top academic critics on technology today.

The section analyzes his bestselling 1964 book, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society* which criticized the controls and domination inherent in contemporary technological society, both capitalist and communist. Following this brief introduction there are five sub-sections:

Part one, "Marcuse's Philosophy in His Time," covers a micro history of Marcuse, his time and his influences. Part two, "The Aesthetic Approach" investigates Marcuse's contribution and innovation to the subject, which is the return to the aesthetic approach he brought to fundament his radical political philosophy. The third sub-section, "The Language of Domination and the Concept of Operationalization," examines his discussion of the analytic prediction—a language form that has been used to control and limit the contents of language, and the important concept of operationalization which occurs both in the language of domination and the coercive manner of reducing the aesthetic possibilities into digestible technical problems. Section four, "Repressive Sublimation and the Agenda of Poverty," takes a look at how technocracy refocuses negative energy in its constituents to release against the scapegoats of society, and how poverty is used

as a threat to counter hegemonic thought. And finally, in the section entitled, "Marcuse's Proposal and his Critics," I will conclude and show what Marcuse proposed to solve the problem, how his work has been critiqued and finally how it fits into the overall schema of this thesis.

This subsection on Marcuse will enable a line that takes us to the following subsection, on Feenberg's Critical Theory which precedes the subsection with my contribution—examining the link between the seemingly divergent development and sustainability causes in the United Nations document entitled *Our Common Future*—to the issue further on in this chapter.

Marcuse's Philosophy in his Time

Prior to beginning, there are several important issues to note with Marcuse as a thinker. To start with, he was one of the most important and influential living philosophers of his times, particularly through the 1960s and 70s. Perhaps this stems from the fact that for him and the Frankfurt School philosophy was political—that is to say, for Marcuse, philosophy had an active role to play in society; it was not an exclusive domain for the elite thinkers, nor merely one of intellectual pleasure.[22] A critique of domination, for Marcuse, was the stepping stone to a freer and better life for all.

Marcuse's immediate political stance, and differentiation from his teacher who considered technology autonomous, can be seen in the introduction of his *One-Dimensional Man*, where he writes "Technological rationality has become political rationality" (1964, xlvii). Here by making a stand against the value-ladenness of technological rationality, he is actually going against a

[22] There are some clear references for which this situation evolved. The historical roots of the Frankfurt School were in Germany. The group was made up of primarily German Jews, several of which—most notably Walter Benjamin—did not escape fascist rule. Marcuse, a Jew himself who narrowly escaped Hitler's death camps, put all of his effort into fighting governmental oppression, in particular fascism. In Germany, he joined the Soldiers' Council that participated in the aborted socialist Spartacist uprising which was crushed by the proto-fascist militia known as the Freikorps. His first book after leaving Germany, a country to which he would never live again, was *Reason and Revolution* which synthesized Marx and Hegel's dialectics. He then served during WWII at the U.S. Office of War Information (OWI) on anti-Nazi propaganda projects. Later, he worked at the Office of Strategic Services (OSS) on the denazification of Germany. His radical nature later turned against the government he had worked for, when he saw the fascist and totalitarian leanings of US foreign policy throughout the Cold War, culminating in his vocal opposition to the Vietnam War that would play a part in his losing his teaching position at Brandeis University in 1965, just after he published *One-Dimensional Man*, a best-seller and arguably the most read book on philosophy of the time.

political structure that is hidden in the background in a supporting but largely anonymous role. What he seeks to examine in this work are the values of the ruling classes which, emanating from atop the technocratic hegemony, are installed in the very design of rational procedures, laws and machines even before technology is designed a specific goal.[23] These new percolating values erode traditional ones by replacing them with seemingly benign technological, up-to-the-minute ones, like efficiency and practicality.

Marcuse's starting point—this domineering form of technology—is one that sediments silently into the background of laws, procedures and artefacts of the community which in turn empower those that have been pursuing power and authority over the system and in a dominant position while remaining largely unseen. His counterpoint is an aesthetic one, in the Aristotelian sense to which I will refer later. Marcuse discusses actuality with potentiality; that is to say he compares today's one-dimensional world where conformity to modern logic seems like the only possibility, to a liberating, questioning world with freer and happier modes of human existence. Through his aesthetic consciousness the absurdities and inhumanities of advanced industrial society are brought out of their background roles and exposed in the limelight. And thus, unmistakably, his writings can and have been described as politically motivated aesthetic interventions.

In his lifelong work on this front, Marcuse participated actively with the protests of the New Left[24] throughout the United States, as well as joining the May Events in Paris, 1968. His philosophy was a mainstay used by many of the counter-cultural groups of the New Left, including the environmental movement. We will see traces of his work in the following chapter of this thesis where I examine Greenpeace in their foundational 1971 environmental and anti-nuclear protest.

Another reason for Marcuse's popularity could be because he wrote in a direct, easy-to-understand language. Furthermore, he published his work in English. The result is a text that is

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[23] Bruno Latour (1987, 1992) develops this idea in his work, calling them "modalities." Feenberg also considers these crucial elements as part of what he describes as the "technological code." We will follow up on Feenberg's work on the technical code in the next subsection.
[24] In fact, Marcuse was commonly known as the "guru" of the New Left.

clear to understand by Anglo academics, and not confused by difficult language, concepts and translations as in the case with Heidegger. Because of this, the consensus on the interpretation or meaning of his work is much greater than on his teacher's. However, there are a few elements of his philosophy, in particular the choice of an aesthetic perspective as opposed to an ethical treatment of the problematic which we will investigate in the following subsection that has sparked some controversy. These are the areas that the generation of his academic offspring, particularly Feenberg and Kellner, took on in their investigations.

The Aesthetic Approach

Marcuse, an active and early member of the Frankfurt School, picked up where Heidegger left off with technology. In some ways his work was a direct response to his teacher's, and in others it was the opening of an original thought. In the first sense, as discussed in the previous section, while Heidegger saw the problem in technological society, Critical Theorists like Marcuse felt that Heidegger's existentialist philosophy was unable to solve it satisfactorily.

Much of Heidegger's ideas can be seen implicitly through a close study of Marcuse's work. I say implicitly, for as I show in this chapter, there are numerous similarities between the two, yet there is only one mention—a footnote on page 154—of Heidegger in the entire text of *One-Dimensional Man*. For a variety of reasons—the least of which is that Heidegger was labelled a Nazi sympathizer—it became quite unpopular to quote from Heidegger in the postwar world, particularly in the United States where Marcuse was working. However, while Marcuse's problematic is the same as his teacher's, due to his change in perspective—he uses an aesthetic approach, as opposed to the existential argument[25] as his philosophical base—, his findings and methodology are substantially different.

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[25] Marcuse went against the existential standpoint of his teacher. This can be seen as early as 1934 in his "The Struggle against Liberalism in the Totalitarian State" where he states: Existentialism collapses in the moment when its political theory is realized. The total-authoritarian state which it yearned for gives the lie to all its truths. Existentialism accompanies its collapse with a self-abasement that is unique in intellectual history; it carries out its own history as a satyr-play to the end. It began philosophically as a great debate with Western rationalism and idealism, in order to redeem the historical concretion of individual existence fro this intellectual heritage. And it ends philosophically with the radical denial of its own origins; the struggle against reason

Marcuse takes the starting point that science and technology *can* be elements of liberation, that they are not necessarily autonomous and value-laden as Heidegger had posited. In *An Essay on Liberation* he elaborates:

> For freedom indeed depends largely on technical progress, on the advancement of science. But this fact easily obscures the essential precondition: in order to become vehicles of freedom, science and technology would have to change their present direction and goals; they would have to be reconstructed in accord with a new sensibility—the demand of the life instincts. Then one could speak of a technology of liberation, product of a scientific imagination free to project and design the forms of a human universe without exploitation and toil. But this *gaya scienza* is conceivable only after the historical break in the continuum of domination—as expressive of the needs of a new type of man. (1969, p. 18)

More than waiting for a god to save us and escaping technology's domineering reign by thinking creatively as an individual as Heidegger had intoned, Marcuse searched for a philosophic corridor out of the impasse that Heidegger had left us with—a society determined by an autonomous and value-laden technology. He was in search of a liberating society-wide stance that got rid of the oppressive elements of contemporary society, science and technology, and that could work to emancipate humankind on both a generalized and individual level.[26]

In his *An Essay on Liberation*, he posits that the danger and the solution of emancipation both reside within the center, at the very heart of the system: the needs of the individual:

> At this stage, the question is no longer: how can the individual satisfy his own needs without hurting others, but rather; how can he satisfy his own needs without hurting himself, without reproducing, through his aspirations and satisfactions, his dependence on an exploitative apparatus which, in satisfying his needs, perpetuates

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drives it blindly into the arms of the reigning powers. In their service and protection it betrays that great philosophy which it once celebrated as the pinnacle of Western thinking. (1934, p. 68)

[26] To do so, though, it would have to begin at the personal level with what Marcuse called the "Great Refusal," a qualitative non-acceptance of the status quo of technological society which he described as "the refusal with which the opposition confronts the existing society is affirmative in that it envisages a new culture which fulfills the humanistic promises betrayed by the old culture" (1969, p. 10).

> his servitude. The advent of a free society would be characterized by the fact that the growth of well-being turns into an essentially new quality of life. This qualitative change must occur in the needs, in the infrastructure of man (itself a dimension of the infrastructure of society): the new direction, the new institutions and relationships of production, must express the ascent of needs and satisfactions very different from and even antagonistic to those prevalent in the exploitative societies. Such a change would constitute the instinctual basis for freedom which the long history of class society has blocked. Freedom would become the environment of an organism which is no longer capable of adapting to the competitive performances required for well-being under domination, no longer capable of tolerating the aggressiveness, brutality, and ugliness of the established way of life. This rebellion would then have taken root in the very nature, the "biology" of the individual; and on these new grounds, the rebels would redefine the objectives and the strategy of the political struggle, in which alone the concrete goals of liberation can be determined. (1969, p. 4-5)

This work represents the more radical end of the Critical Theorists. For the 1940s two lines of study opened up within the Frankfurt School. Horkheimer and Adorno worked on the *Dialectic of Enlightenment* where they studied the philosophical-cultural trends of what they considered self-destructive Western civilization while Marcuse and Newman developed a more practical-political development of Critical Theory. Theirs was the theory of social change. Their target was to expose the domineering politics of technology. The system of technological rationality that they were attacking had been put forward by the technocratic hegemony since the Enlightenment yet was barely perceivable via the instrumental, determinist and substantivist views on technology. Because of this, Marcuse would turn to an aesthetic lens, in the Classic Greek sense. And the unveiling of the system behind technological rationality was the political twist inherent in the question of technology that Marcuse wanted to both expose and then destroy.

Although he posits the force of the aesthetic argument in many of his works, *One-Dimensional Man* is Marcuse's most well read example of this kind of philosophy.[27] The intention to find a means for liberation was there from the beginning. In a prospectus describing the work he states:

> This book deals with certain basic tendencies in contemporary industrial society which seem to indicate a new phase of civilization. These tendencies have engendered a mode of thought and behaviour which undermines the very foundations of traditional culture. The chief characteristic of this new mode of thought and behaviour is the repression of all values, aspirations, and ideas which cannot be defined in terms of the operations and attitudes validated by the prevailing forms of rationality. The consequence is the weakening and even the disappearance of all genuinely radical critique, the integration of all opposition in the established system.[28]

Like Heidegger, Marcuse begins looking at the faulty instrumental conception of technology. Certainly, Marcuse agrees that modern technology is free from traditional values and humane considerations. But that does not make it merely instrumental or "value-free." Rather, this carries a particular political intention, one that integrates individuals into its world of thought and behaviour. Rather than seeing these developments as beneficial to the individual, Marcuse sees them as a threat to human freedom and individuality in a totally administered society."[29]

Technology thus seen is a particular world unto itself. Control and domination preside at its core, yet these elements are difficult to see, so difficult that it admits no value ladenness, calling itself objective. This is its main difference of modern technology from ancient *techne*. Clearly a different self understanding would promote a different technology altogether. Both

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[27] In fact, *One-Dimensional Man* is deeply connected to the political theory that Marcuse worked on in a previous book entitled *Eros and Civilization* (1955).
[28] This quote comes from Douglas Kellner's "Introduction to the Second Edition" in the 1991 re-release of *One-Dimensional Man*. Beacon Press: New York. I will be quoting widely in this subsection from this particular work.
[29] Again, this comes from Kellner's introduction to *One-Dimensional Man*, page xii.

Marcuse and Heidegger attack the same problem, and thus the similarity in their work is apparent. However, their politics are opposite.[30]

Marcuse takes aim at the determinist factor of Heidegger's work and does two interrelated changes to Heideggerian theory. Firstly, he breaks with the substantivist perspective, accepting the value-ladenness of technology, while refusing to grant it neither autonomy nor a singular essence like efficiency. By so doing, he calls for social agency in the problematic; and secondly, and implicit in the first instance, he takes an approach that invokes the possibility of re-inscribing technology with beneficial qualities to ensure a better future as opposed to what has been deemed the hopeless or depressing position of his teacher.

Throughout the book he makes three observations on phenomena which have brought about the conditions of one-dimensional society in the capitalistic world: 1) the integration of the proletariat; 2) stabilization of capitalism; and 3) the demise of the revolutionary left, along with the absence of genuine forces of progressive change.[31] The overriding result was the decline of both individual freedoms and the possibility of revolution. Yet he does not think that the forces of history or technological society are irreversible. This is by no means the "end of history."

This position is possible for while Heidegger promoted a substantivist approach, Marcuse took on the discussion of technological society to a dialectical philosophy of aesthetics. This

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[30] This comes from the introduction of Andrew Feenberg's (2005) *Heidegger and Marcuse: The Catastrophe and Redemption of Technology.* I will be quoting from this text widely in this section.

[31] Although it seems counterintuitive, these forms of repression actually come not from repressive hegemonic activities, but rather from seemingly positive co-option. By co-opting the arts into the market system, they reduce their *perceived* aesthetic value. Nonetheless, their actual potential system-changing substance still exists. Marcuse, in an interview towards the end of his life describes the situation:

I think we have seen today that there seems to be hardly anything that capitalist society cannot tolerate. It incorporated and accepted the most radical and avant-garde forms of art and literature. You can buy them in the drug store. But I think that this does not affect or detract from the quality and truth of these "accepted" works of art. Let's take an example from the visual arts: a statue by Barlach, or the artistic value and truth of a statue by Rodin. It is in no way reduced or falsified if you put that statue, as happens today, in the lobby of a bank or in the lobby of the offices of a big corporation. What has changed is the receptivity of the consumer, not the work of art itself. James Joyce remains James Joyce; whether you can buy him at the drug store makes no difference. A Beethoven quartet remains what it is even if it's played over the radio while you are doing the dishes.

For more on this interview please turn to Hartwick (1981).

standpoint requires a revival of Hegelian dialectics and the "the power of the negative" (1964, p. 171).

To understand this and the concept of Marcusian aesthetics, we have to go back to Heidegger's idea of the interplay between simultaneous concealment and unconcealment in every revealing. In this play of particular and universal, the ontological[32] ramifications transcend the operational "*is-ness*" (in that particular revealing) of a thing, and include their "*ought-ness*" which exists transcendentally, before the particular experience. The aesthetic approach is more lofty, critical and less definable than the one-dimensional aspect because of the power of the "ought"—what *could* be.[33]

To further the argument, Marcuse goes back to Aristotle to understand the concept of truth. If, like the Greek said it was, truth is in the essence, and the essence is never fully actualized, then each example, measured empirically via the technological paradigm, is imperfect, or what he called a false abstraction. Or, as his teacher said, it is merely correct and

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[32] According to Marcuse, ontology is the first science. He states:
The separation of science from philosophy is itself a historical event. Aristotelian physics was a part of philosophy and, as such, preparatory to the "first science"—ontology. The Aristotelian concept of matter is distinguished from the Galilean and post Galilean not only in terms of different stages in the development of scientific method, but also, and perhaps primarily, in terms of different historical projects, of a different historical enterprise which established a different nature as well as society. Aristotelian physics becomes objectively wrong with the new experience and apprehension of nature, with the historical establishment of a new subject and object-world, and the falsification of Aristotelian physics then extends backward into the past and surpassed experience and apprehension. (1964, p. 185)

[33] Marcuse clarifies the inherent contradiction in what he calls the "negative" in *An Essay on Liberation*:
Negative thinking is by virtue of its own internal concepts "positive": oriented toward, and comprehending a future which is "contained" in the present. And in this containment (which is an important aspect of the general containment policy pursued by the established societies), the future appears as possible liberation. It is not the only alternative: the advent of a long period of "civilized" barbarism, with or without the nuclear destruction, is equally contained in the present. Negative thinking, and the praxis guided by it, is the positive and positing effort to present this utter negativity. (1969, p. 87)

A similar point was also expressed by Hardt & Negri, some 30 years later:
These new figures and subjectivities are produced because, although the struggles are indeed anti-systemic, they are not posed *merely against* the imperial system—they are not simply negative forces. They also express, nourish, and develop positively their own constituent projects; they work toward the liberation of living labor, creating constellations of powerful singularities. This constituent aspect of the movement of the multitude, in its myriad faces, is really the positive terrain of the historical construction of Empire. This is not a historicist positivity but, on the contrary, a positivity of the *res gestae* of the multitude, an antagonistic and creative positivity. The deterritorializing power of the multitude is the productive force that sustains Empire and at the same time the force that calls for and makes necessary its destruction. (2000, p. 61)

not true by all means. On the other hand, a true abstraction in Marcusian terms means one that encompasses the meaning of the thing.

Feenberg describes the situation:

> A "true" thing is one that manifests its own essence. But since essence is never fully realized, it actually negates every contingent realization in the imperfect objects of experience. The "is" always contains an implicit reference to an "ought" it has failed to some degree to achieve. This "ought" is its potential, which is intrinsic to it and not merely projected by human wishes or desires. (Marcuse, 1964, pp. 124-125, 133-134)
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> Whatever the ultimate validity of ancient metaphysics, it maintains the tension between the two dimensions of being, essence and existence, the ideal and the real. It thereby preserves the truth of critical reason, the notion that what is is fraught with tension between its empirical reality and its potentialities. (1999, p. 7)

The one-dimensional state, conversely, is a particular kind of singular revealing, one that can be quantified or measured (Marcuse, 1964, p. xlii) that is "correct," but not necessarily "true." This overriding modern revealing has become so repetitive and formulaic that it has developed into a certain kind of rationalism, one that kills all reference to essence and potentialities. In the new paradigm only the empirically or scientifically observed entity is real. Subsequently all of nature gets absorbed into the technological system which submits them to alien ends. This stands in stark contrast to the multifaceted, never-really-reachable, two-dimensional concept he encourages. Brought down to the specific, the aesthetic way of understanding reality means that we can never expect to completely understand even the most mundane object. It will reveal itself to us and to others differently on every occasion, if we are prepared to accept it as what it as what it *could* or *ought* to be.

In short, Marcuse's approach shows the necessity of both the actualities—that which is presently empirically valid in technological society and undertaken by the scientific understanding of being—and the potentialities—elements that exist within the object but long since disbanded by technological rationality as teleological or metaphysical. Through this viewpoint we arrive at the

aesthetic in the classical Greek sense. Here, Marcuse does a philosophical move that brings back the transcendental, universalizing concepts of antiquity. He goes back to try and revive the old transcendental essences of community-forming concepts which have been withered away by a pragmatic and dominating technology. For example, he retakes Rousseau's discussion on the repressive ideology of modern freedom according to which:

> Human liberty can blossom forth in a life of toil, poverty, and stupidity. Indeed, society must first create the material prerequisites of freedom for all its members before it can be a free society; it must first *create* wealth before being able to *distribute* it according to the freely developing needs of the individual; it must first enable its slaves to learn and see and think before they know what is going on and what they themselves can do to change it. And, to the degree to which the slaves have been preconditioned to exist as slaves and to be content in that role, their liberation necessarily appears to come from without and above. They must be "forced to be free," to "see objects as they are, and sometimes as they ought to appear," they must be shown the "good road" they are in search of. (cited in Marcuse, 1964, p. 40)

Marcuse does so by using the concept of the negative, which "presupposes the ability to make a distinction between existence and essence, fact and potentiality, and appearance and reality" (1964, p. xiv).

The problem is a question of layering of complexity in society. Technical rationality, as Heidegger presented it, confuses the measurable with the real. This is an ontological problem, for the transcendental is immeasurable. Marcuse, like his teacher, understood Modernity as the epistemological event where this technological understanding of the world has grown to challenge all *rationales*, including truly rational aesthetic and traditional thinking. Furthermore, the technological paradigm was in based on a faulty, destructive and irrational rationality. Marcuse states:

> The union of growing productivity and growing destruction; the brinkmanship of annihilation; the surrender of thought, hope and fear to the decisions of the powers that be; the preservation of misery in the face of unprecedented wealth constitute the

most impartial indictment... [Society's] sweeping rationality which propels efficiency and growth is itself irrational. (1964, p. xlv)

To bypass this problem, Marcuse attempts to redirect this seemingly value-free (yet politically potent) *techne* into one that is inclusive of ethics and under the domain of aesthetics so that its gaze reveals more than a heap of raw materials as was the case with Heideggerian Enframing. By embedding within it a charge of dialectic philosophy Marcuse attempts to open up the possibility of a meaningful world. .

This "value-embedded" position is explicit in Marcuse. For him, politics is the necessary domain of philosophy particularly when it applies to the freedom of humanity. It is crucial to go back to a dialectic and historic philosophy to end the monopoly of a totalitarian, *a priori*, technological rationality. He states:

> In the face of the totalitarian features of this society, the traditional notion of the "neutrality" of technology can no longer be maintained. Technology as such cannot be isolated from the use to which it is put; the technological society is a system of domination which operates already in the concept and construction of techniques.
>
> The way in which a society organizes the life of its members involves an initial choice between historical alternatives which are determined by the inherited level of the material and intellectual culture. The choice itself results from the play of the dominant interests. It anticipates specific modes of transforming and utilizing man and nature and rejects other modes. It is one "project" of realization among others. But once the project has become operative in the basic institutional relations, it tends to become excluding and to determine the development of the society as a whole. As a technological universe, advanced industrial society is a political universe, the latest stage in the realization of a specific historical project—namely, the experience, transformation, and organization of nature as the mere stuff of domination.
>
> As the project unfolds, it shapes the entire universe of discourse and action, intellectual and material culture. In the medium of technology, culture, politics, and the economy merge into an omnipresent system which swallows up or repulses all

alternatives. The productivity and growth potential of this system stabilize the society and contain technical progress within the framework of domination. Technological rationality has become political rationality. (1964, p. xlviii)

The necessity for this new look at technology comes from the potential of technological society to continue growing and consuming all other surviving rationales:

> [It] serves to institute new, more effective and more pleasant forms of social control and social cohesion. The totalitarian tendency of these controls seems to assert itself in still another sense—by spreading to the less developed and even to the pre-industrial areas of the world. (1964, p. xlvii)[34]

As we have seen, Marcuse, unlike the substantivists and determinists considered the spread and its logic was not *a priori*, but rather part of an historical process. Marcuse looked at history as governed by dynamic forces. History was the result of potentials that were actualized, thus the concept of technological determinism, inherent in substantivist philosophy is bypassed.

Through the lens that sees society as dynamic and historic, one can understand that it is made up of more than the actual state of things. For without potentialities, things that are, simply are, as is perceived in the scientific, radical empiricist style now common in describing the world.[35]

> With all its exploring, exposing, and clarifying of ambiguities and obscurities, neo-positivism is not concerned with the great and general ambiguity and obscurity which is the established universe of experience. And it must remain unconcerned because the method adopted by this philosophy discredits or "translates" the concepts which could guide the understanding of the established reality in its repressive and irrational structure—the concepts of negative thinking. The transformation of critical into

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[34] The spread of this technological rationality is the beginning point of this thesis. For, I am examining how technological rationality is woven throughout the planet. As we see in future chapters, the concept of development, with its closely corresponding concept of underdevelopment has been a mainstay in the spread of this rationality throughout the countries of the south.

[35] A classic example to understand the concept of potentiality is in the conception of a child. The child has within him/herself potentials which are perhaps guidable from family, but never definable via an empirical, *a priori* dissemination.

positive thinking takes place mainly in the therapeutic treatment of universal concepts; their translation into operational and behavioural terms parallels closely the sociological translation discussed above. (1964, p. 183)

But this neo-positivistic approach does not allow for any agency, nor growth of the actors involved; rather, it controls them by limiting the ways of thinking. The way to explain these, according to Marcuse, is via not only accepting potentialities, but making them part of the design process. Marcuse underscores his standards for making this critique in his introduction:

> Certainly value judgments play a part. The established way of organizing society is measured against other possible ways, which are held to offer better chances for alleviating man's struggle for existence; a specific historical practice is measured against its own historical alternatives. From the beginning, any critical theory of society is thus confronted with the problem of historical objectivity, a problem which arises at the two points where the analysis implies value judgments:
>
> 1. the judgment that human life is worth living, or rather can be and ought to be made worth living. This judgment underlies all intellectual effort; it is the *a priori* of social theory, and its rejection (which is perfectly logical) rejects theory itself;
> 2. the judgment that, in a given society specific possibilities exist for the amelioration of human life and specific ways and means of realizing these possibilities. Critical analysis has to demonstrate the objective validity of these judgments, and the demonstration has to proceed on empirical grounds. The established society has available an ascertainable quantity and quality of intellectual and material resources. How can these resources be used for the optimal development and satisfaction of individual needs and faculties with a minimum of toil and misery? Social theory is historical theory, and history is the realm of chance in the realm of necessity. Therefore, among the various possible and actual modes of organizing and utilizing the available resources, which ones offer the greatest chance of an optimal development? (1964, p. xlii-xliii)

There is a truth/correctness split here. He criticized the premise of today's thinking—what is empirical is real—as Pre-Socratic. For Marcuse, the potential which he alternatively calls the *substantive* universal, like the abstract concept of technology, democracy, etc., offers the critical potential lost in technological society's *formal* universals. Marcuse goes back to the dialectical relationship of *Eros* and *Logos* as the building block of the possibility of two-dimensional, or philosophical thinking. He states that the reconciliation of the Logos and Eros "pertains to the metaphysics of liberation" (1964, p. 167). Combined, these two necessarily complimentary elements will envisage the "coming to rest of the repressive productivity of Reason, the end of domination in gratification" (1964, p. 167).

To sum up Marcuse's stance it is worthwhile to remember Heidegger's approach. Heidegger leans towards the idea of the redeemable qualities of the arts, yet claims that only "a god can save us." Heidegger states "in our sheer aesthetic-mindedness we no longer guard and preserve the coming to presence of art" (p. 35). Art through technological Enframing is an impossible possibility. Rather than invoke it as a saving force, he laments the eternal loss of its potential.

Marcuse, on the other hand, takes Heidegger's end-of-art woe as his starting point. He looks at its disappearance as concurrent with the intermingled history of the growth of the sciences. He claims that science, art and philosophy are essentially linked through the "consciousness between the apparent and authentic truth, and the effort to comprehend and to master this discrepancy" (p. 229). Instead of falling into Heidegger's trap, Marcuse posits the necessity of exposing the history of this trend and then traces the chronology of the divide from Reason to modern rationality. Unlike his teacher's standpoint, for Marcuse this is not an irreversible process.

Both would agree, then, that modernist thinking has led to a pervading Enframing, or one-dimensional thinking. But Marcuse shows how the reduction of Platonic ideas to Technologic Rationality leaves us with a meagre common stock of knowledge and art is condescended as fiction. He wonders "What is this "common stock [of modernist thinking]"? Does it include Plato's "idea," Aristotle's "essence," "Hegel's *Geist*, Marx's *Verdinglichung*... does it include their

negative connotation—that is, as invalidating the universe of common usage? These are the aesthetic qualities he is looking for. If the common stock of modernist thinking doesn't include *these, then* a whole body of distinctions which men have found worth drawing from is rejected, removed into the realm of fiction or mythology; a mutilated, false consciousness is set up as the true consciousness that decides on the meaning and expression of that which is. The rest is denounced—and endorsed—as fiction or mythology (p. 188).

And here comes a twist: the arts were also co-opted by the hegemony. Traditionally, aesthetics had the magic power only as long as they maintained the power of negation. Yet according to Marcuse, "The developing technological reality undermines not only the traditional forms, but the very basis of the artistic alienation—that is, it tends to invalidate not only certain "styles" but also the very substance of art." (1964, p. 62). The saving power of aesthetic reverts to a technologically reduced aesthetic and becomes "useful" in the sense of the ruling hegemony as in the case of advertising where it loses its inherent ability to critique. In fact, rather than critique the system via aesthetically universal and challenging concepts, the arts now perpetuate the system though their co-option by the mass media. The arts thus "become cogs in the culture-machine which remakes their content" (1964, p. 65).

For Marcuse, then, the aesthetic approach—in the traditional sense of the word—is the missing link between one- and two- dimensional life. We can retrieve the critical theory though an appropriation of the dialectical quality of the negative, or the universal and through history. These are the tools that unleash the acuteness of our vocabulary, though processes and creative possibilities. For Marcuse, true art, appears in the folds of the dialectic that modernity has collapsed. Yet it is an active potential. The *raison d'être* of his writing is that the idea of possibility be rediscovered, invoked and built back into the common stock of human thinking.

The Language of Domination and the Concept of Operationalization

Of the many heuristics with which one-dimensionality can be examined (Marcuse cites politics, the history of science, and the concept of the measurement of work amongst others) language is an important one, particularly in lieu of the project at hand: questioning the defining of the term coined by the World Commission on Environment and Development (WCED), sustainable development.

To begin Marcuse's work on this front, it is necessary to comprehend language as a technology in the sense of Marcusian philosophy as we have seen so far. Through this light, language is a world vision, as opposed to its instrumental role as simply a means of communication. Seeing it thus as both means and ends and historic and humanly controlled, we revisit Marcuse's critique on the analytic predication found in the syntax of sustainable development.[36]

As I have pointed out in the introduction of the thesis, this particular reading of technology from the Critical Theorists enables a powerful critique against modernity's operationalization—a term I discuss in depth further on in this section—of transcendental issues; in the case of this thesis I am discussing the concept of democracy, sustainability and development. Through a review of classic grammar, Marcuse shows the possibility of a powerful way of revisiting meaning in language, which recalls his thesis on two-dimensional thinking, which is made up in the dialectic relationship between actuality, and potentiality—both of which are lost in the repressive operational language form typical in modernity and built in to the concept and syntax of the WCED's term, sustainable development.

In chapter four: "The Closing of the Universe of Discourse," of One-Dimensional Man, Marcuse attacks the uncritical and conformist thinking pervasive in one-dimensional thinking as the "Happy Consciousness—the belief that the real is rational and that the system delivers the goods" (1964, p. 84). He underlines this as the basis of a new conformism which technological

[36] Marcuse dedicates chapter four of his work to disentangling the method of one-dimensional-speak. Not surprisingly, this kind of analysis can also be seen in Heidegger who considered traditional language implied the coming into presence of truth, a truth that is misunderstandable in a way that technological language is not. This is what Heidegger meant when he said there was something mysterious about language.

rationality translates into social behaviour. What is new about it, he says, is that "it is rational to an unprecedented degree. It sustains a society which has reduced—and in most advanced areas eliminated—the more primitive irrationality of the preceding stages, which prolongs and improves life more regularly than before" (1964, p. 84). From the so-called "successes" of this boundless technology, he accuses modern man of being too well off to care about transcendental critical notions as technology only focuses on the positive thinking and doing.

Language has much to do with this loss as it is fundamental to human thinking and communicating:

> Discourse is deprived of the mediations which are the stages of the process of cognition and cognitive evaluation. The concepts which comprehend the facts and thereby transcend the facts are losing their authentic linguistic representation. Without these mediations, language tends to express and promote the immediate identification of reason and fact, truth and established truth, essence and existence, the thing and its function. (1964, p. 85)

This is to say that the linguistic strategy of operationalism—*to make the concept synonymous with the corresponding set of operations*—considers the names of things as simply indicative of their manner of functioning. In so doing it inhibits the non-conformist structures of speech. While there is little reason to contest this for functional words, he fears a reduction of capacity of protest when the terminology that has been operationalized is controversial and substantially universal.

> Here, the functionalization of language expresses an abridgement of meaning which has a political connotation. The names of things are not only "indicative of their manner of functioning," but their (actual) manner of functioning also defines and "closes" the meaning of the thing, excluding other manners of functioning. The noun governs the sentence in an authoritarian and totalitarian fashion, and the sentence becomes a declaration to be accepted—it repels demonstration, qualification negation of its codified and declared meaning. (1964, p. 87)

In other words, analytic predication—where the noun is modified by a contradicting adjective, typical in political discourse—like the concept of "smart bombs" (note the contracting adjective "smart" modifying the noun "bomb") or sustainable development—forecloses on itself. It moves in tautologies and becomes void of meaning other than operational information which forecloses on truth and describes what is really an oxymoron. It reduces the noun to its operational function, and destroys the possibility of any essentially different (and possible true) definitions of the noun. The now-modified noun fixes any development of meaning and petrifies the concept with its modern, fixed image into a false sense of unity, a harmony of contradictions.

By creating and using such terms, the technological hegemony controls language, and speaks in a way that "testifies to an identification and a unification, to the systematic promotion of positive thinking and doing to the concerted attack on transcendental, critical notions" (1964, p. 85). It can do so by using a language in its everyday discourse, transmitted by the mass media, that promotes the "immediate identification of reason and fact, truth and established truth, essence and existence, the thing and its function" (1964, p. 85). Meanwhile the concepts that comprehend the facts are lost and discourse no longer enables a two-dimensional cognition and cognitive evaluation. The audience has no choice to understand and obey—that is why he calls it the language of domination.

Marcuse examines the root of this powerful linguistic creation, which he calls the syntax of abridgement. Using Barthes' work on the subject, he shows that its power is in its ahistoricity. For the abridgement is cliché and a priori. It militates against a development of meaning. There is no "space" in the sentence or phrase to conceptualize it. He states: "The syntax of abridgement proclaims the reconciliation of opposites by welding them together in a firm and familiar structure" (1964, p. 89). Thus the paradoxical examples like "smart bomb" and "harmless fallout" are only the extreme creations of a style that has become normalized into everyday life.

Marcuse confronts the illogical nature of the language:

> Once considered the principle offence against logic, the contradiction now appears as a principle of the logic of manipulation—realistic caricatures of dialectics. It is the

logic of a society which can afford to dispense with logic and play with destruction, a society with technological mastery of mind and matter. (1964, p. 89)

In particular, he looks at how political language makes itself immune to protest by admitting and exhibiting their contradictions as the token of truth a strategy of "intimidation and glorification," an immunization against protest and refusal.[37] And by so doing:

> This universe of discourse closes itself against any other discourse which is not on its own terms. And by its capacity to assimilate all other terms to its own, it offers the prospect of combining the greatest possible tolerance with the greatest possible unity. Nevertheless, its language testifies to the repressive character of this unity. This language speaks in constructions which impose upon the recipient the slanted and abridged meaning, the blocked development of content, the acceptance of that which is offered in the form in which it is offered.
>
> The analytic predication is such a repressive construction. The fact that a specific noun is almost always coupled with the same "explicatory" adjectives and attributes makes the sentence into a hypnotic formula which, endlessly repeated, fixes the meaning in the recipient's mind. He does not think of essentially different (and possibly true) explications of the noun... [The constructions in which the authoritarian character of this language reveals itself] have in common a telescoping and abridgment of syntax which cuts off development of meaning by creating fixed images which impose themselves with an overwhelming and petrified concreteness. It is the well-known technique of the advertisement industry, where it is methodically used for "establishing an image" which sticks to the mind and to the product, and helps to sell the men and the goods. (1964, pp. 90- 91)

Such an image-laden language disenables the development and expression of aesthetic or universal concepts. Being direct, immediate and descriptive, such terms disenable any critical thinking; rather, they:

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[37] I am detailing Marcuse's language section because abridged syntax plays a large part in the United Nation's abridging of the words "Sustainable" and "Development," as we will see in chapter four of this thesis.

> ... dissolve concepts in operations and exclude the conceptual intent which is opposed to such dissolution. Prior to its operational usage, the concept denies the identification of the thing with its function; it distinguishes that which the thing is (and thus ought to be) from the contingent functions of the thing in the established reality. (1964, p. 95)

He offers the classical philosophy of grammar which transcends the behavioural universe and relates linguistic to ontological categories as a way out of this impasse. In this sense the subject is firstly a variable "substance" which names the concept, or substantive universal of the thing. It cannot be reduced to a specific ontological unit as in technological language. In this sense, the form of technological language—antidemocratic and counter-revolutionary—is directly related to its content. The abridgement of the concept in fixed images results in "self validating, hypnotic formulas; immunity against contradiction; identification of the thing (and the person) with its function—these tendencies reveal the one-dimensional mind in the language it speaks" (1964, p. 97).

The abridged syntax, what Barthes denotes as the language of all regimes of authority, reveals the one-dimensional character of modernity.[38]

> If the linguistic behaviour blocks conceptual development, if it militates against abstraction and mediation, if it surrenders to the immediate facts, it repels recognition of the factors behind the facts, and thus repels recognition of the facts, and of their historical content. In and for the society, this organization of functional discourse is of vital importance; it serves as a vehicle of coordination and subordination. The unified, functional language is an irreconcilably anti-critical and anti-dialectical language. In it, operational and behavioural rationality absorbs the transcendent, negative, oppositional elements of Reason. (1964, p. 97)

[38] Barthes describes the features of such a language as self-validating. There is no discourse possible: "*il n'y a plus aucun sursis entre la denomination et le jugement, et la cloture du langage est parfaite...*" "there is no longer any delay between the naming and the judgment, and the closing of the language is complete." (cited in Marcuse, 1964, p. 101)

Thus by blocking the aesthetic, substantive universals, the analytical predication is antidemocratic by blocking any possible meditation against the facts. It is anti-historical, anti-critical, and anti-dialectical as the operational expression subordinates all other readings of the words, folding the transcendent and negative possibilities of the words and removing all possible dissociation from the given facts built into the single double meaning. The new language destroys all possible *a posteriori* readings replacing it with a flat, futureless *a priori*. The suppression of Reason through language is simultaneously a suppression of history. And that "is not an academic but a political affair" (1964, p. 97). As such it was reason enough for Marcuse and the Critical Theorists to justify their philosophy to be political in its nature as well.

Marcuse sums it up as:

> The language controls by reducing the linguistic forms and symbols of reflection, abstraction, development, contradiction; by substituting images for concepts. It denies or absorbs the transcendent vocabulary; it does not search for but establishes truth or falsehood. But this kind of discourse is not terroristic. It seems unwarranted to assume that the recipients believe, or are made to believe, what they are being told. The new touch of the magic ritual language rather is that people don't believe it, or don't care, and yet act accordingly. One does not believe that statement of an operational concept but it justifies itself in action—in getting the job done, in selling and buying, in refusal to listen to others, etc. (1964, p. 103)

Through this use of one-dimensional language, we lose the tools to think, to discuss. We can still communicate, but only at a superficial, operational level. Language loses its liberating capacity. History and thus democracy are lost. The *a priori* language of advanced industrial society translates the historic negative into the positive so man can function at a reduced, yet "reasonably well" level. What has taken place in the analytic predication is a "sweeping redefinition of thought itself, of its function and content" (1964, p. 104).

He analyzes how the universal statement "Wages are too low" (1964, p. 118) is particularized by a human resource specialist in an urban setting. The particularization is seen as a positive step forward for the company and for the employee. With that begins "a truly

therapeutic effect"—a remedy for the individual worker can be put into place (or not depending on the case) which is followed by a general euphoria of getting the job done well. As Heidegger would say, however correct this is, it is not true. Operational rationality eliminates thinking about universal concepts, thus destroying all qualitatively different thought, that is to say all critical thought. He calls this operationalization the root of "positive thinking."

Operational rationality can be understood in the following way: a descriptive concept—one that simply describes the state of affairs—is operational. It leaves no possibility for another understanding or questioning. For example, if you define the concept of democracy operationally, that is to describe its functions in a recipe-like form, then the rest—its potentialities—is given up as metaphysical garbage by definition. This is what was happening in Marcuse's time. Today it is easy to find the operational as it is all around us. The challenge, as Marcuse formulated it, was to bring back the "ought-ness" of things, the transcendental and thus the life-affirming and revolutionary, and thus, indescribable.

In this section, Marcuse also takes an interesting linguistic detour, looking at the use of abridgement acronyms. Marcuse singles out the AEC as its acronym gives it a sense of casualness, "as just another administrative agency among many others" (1964, p. 94). As we will see in the chapter on Greenpeace, this casualness is political by design—the AEC stood for the Atomic Energy Commission, which has since become the innocuous NRC—Nuclear Regulatory Commission.[39]

[39] The history of this switch is an interesting occurrence which coincides with what Marcuse had said a decade earlier. The AEC was developed within the United States within a year of the end of World War II. In theory it was created to foster and control the peacetime use of atomic energy. It quickly gained the ire of the radicals of the New Left for its low standards of radiation protection which came out of the Commission's secretive strontium-90 investigations in food, soils and humans in the mid-1950s. The nuclear agency seemed totally undemocratic when it came its numerous and unpopular tests of nuclear warheads—the most infamous of which was the "Castle" weapon test series whose fallout killed numerous Japanese fishermen aboard the sailing vessel *Fukuryu Maru* (in English, the *Lucky Dragon*). By 1974, after numerous protests, one of which we will see in the following chapter, it was swallowed up by another governmentally acronymed institution, the Nuclear Regulatory Commission—a name which immediately abridges the conceptually dialectical concepts "regulatory"—which implies respecting imposed rules—and "nuclear." Thus, according to Marcuse's argument, the concept became cliché, abridged, a priori and conceptually inseparable before the fact.

Through its formal structure one-dimensional society co-ops the oppositional forces lurking within, in this case of the proletariat. One-dimensional language—and thus thinking itself[40]—collapses the possible and reduces the human and thinking condition to responding to empirically available outputs. The danger is, as he states clearly, "Many, and I think the determining, constitutive facts remain outside the reach of the operational concept" (1964, p. 112).

We will examine Marcuse's work on one-dimensional speak, specifically referenced to the term that this thesis seeks to question, in a subsection in the chapter on sustainable development. However, to conclude this section and tie it back into the thesis, we can make a brief summary that in the creation of the term composed of the predicate "development" and the adjective "sustainable" there is an abridgement happening. In their broadest, universal aspect both represent the possibility of what development and sustainability in themselves could be which can be imagined at least through what they have been historically. That is to say that they are messy, complex concepts which connotate a wide continuum of possibility. However, when you condense the two complex concepts into a single unity the result is a blocking of the transcendental function of universality built into both the noun and adjective as separate entities and configured into a new, operationalized and descriptive whole. And this abridged whole, as we have seen in this section, is much less than the two concepts apart.

Repressive Desublimation and the Agenda of Poverty

To describe the mental transformation of society, he employs an inclusion of a Freudian analysis to the subject of consciousness when taking on one-dimensional forms of repression. Marcuse thought that the libido that Freud talked about was really an aesthetic relationship to the world. In technological society this libido, rather than being let loose to discover the world, was being channelled into a limited number of useful areas. For example, you go shopping and objects have a "value"—a) they have a price; b) they have aesthetic qualities, like color, size, cool

[40] Marcuse put it clearly: "What is taking place is a redefinition of thought itself, of its function and content" (1964, p. 104).

appearance...etc. To Marcuse, this was de-eroticized sex and at the same time de-contextualized aesthetics. Contemporary aesthetics was that which gave instant pleasure, not that which transcended the present actuality and brought questioning, as in Marcuse and Aristotle's sense of the term.

Marcuse felt that as cultures became rich, centralized rulers attempted to channel these potentially subversive energies into what he calls repressive desublimation;[41] this can be seen as the channelling of erotic (in the classical Greek sense) energy into things like religion, sports, shopping and sex. Yet to Marcuse, these new forms are representative of "positivistic" repression for they sublimate, or transfer emotions, to a non-threatening force in respect to the ruling hegemony.

This use of sublimation through consumption can be seen as a post-WWII technology. During this time there was a powerful shift to a consumer society, and the society itself "delivers the goods." The result of this capacity is this co-opting of the working class, desublimating the tensions of society through a redirection the collective psychosis through involuntary competition in the various marketplaces. Through this centralized control of the energies of the masses, the possibility of revolution dissipated, for just about everyone was within the confines of the system, which was by definition competitive, and thus not suited to a coordinated counter-offence as would be necessary to overthrow the system.[42]

In the case of desublimation, the system channels aggression to outside forces which are scapegoats (Marcuse witnessed this first hand as this was the original idea of Nazis who created and fought the outsiders of their society—gypsies, homosexuals, and Jews like himself to name a few). Society then has no alternative but join the fight versus these outside enemies—for they can take away the society's ability to "deliver the goods"—and bonds in their refusal of these outsiders, like the Vietnamese during Marcuse's time in the USA. The outside enemy enabled

[41] Freud had said that sublimation is the refocusing of psychic energy from negative to more positive outlets. For more on his theory, please see Gay (1992).

[42] The question of co-option is important when it comes to the environmental debate. For once inside technical society, would there any more room for revolution, in a qualitative sense as Marcuse posed? This is the question of my thesis, for clearly the Brundtland report did co-opt the environmental platform, but the question I pose, is did it fully co-opt their ideas, or merely their operationalized form?

technological society to retain control. And the outside enemy was not just the communists in his time. It was also the misfits—the so-called "developing nations."[43]

Marcuse looked at the absurdity of abject poverty. As modern society was so rich, it was at the same time inconceivable to generate such poverty. But he concluded that it is avoidable yet useful. For through it, the wealthy elites can terrorize their constituents to fit in. This text is inherent in technological society, for if you do not fit in, or buy into the system, well, abject poverty is what you can expect. Through this inherently terroristic style of authoritarianism we evolve through advanced industrial society. And this is but the "outer layer to the one-dimensional universe in which man is trained to forget, to translate the negative into the positive so that he can continue to function, reduced, but fit and reasonably well" (1964, p. 104).

The issue was, as opposed to Marx—who had conceived the proletariat as outsiders to the system—one-dimensional society and its persuasive mass media had co-opted this very same group. They were now "inside" the system, brought in through interests like competition for work[44] and desires. The result was what he called the "Happy Consciousness"—the belief that the real is the rational and the system delivers the goods reflects the new conformism which is a facet of technological rationality translated into social behaviour" (1964, p. 84).

As we have seen, Marcuse's one-dimensional world relates closely with Heidegger's modern Enframing. At the same time it relates intimately with Huxley's dystopic vision of a futuristic society that reduces love to sex, education to repetition, and freedom to choose to "free" choice amongst delimited options. For as Feenberg states, "A one-dimensional world emerges in which critical reason is easily dismissed as unmotivated neurotic discontent." And that critique is alright, even "functional for the system, proving the full extent of its liberalism by their ineffective complaints" (1964, p. 8). The consensus is that good or bad, the system delivers the goods.

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[43] We will closely examine this concept of the developing nation in the chapter on development.
[44] The full discussion of how one-dimensional society co-opts the proletariat, through decreasing the blue collar force and increasing automation and management positions can be read in Marcuse's section on the "Prospects of Containment," pages 34-38.

Marcuse's Proposal and Critics

Until now we have examined Marcuse's pinpointing of the problems of one-dimensional society as the operationalization of all aspects of life, through a language and sense of truth that is reduced from an ontological Truth to an empirical correctness. As Kellner states, Marcuse's argument has been that the "system's much lauded economic, political, and social freedoms, formerly a source of social progress, lose their progressive function and become subtle instruments of domination which serve to keep individuals in bondage to the system that they strengthen and perpetuate" (1964, p. xxx).[45] One-dimensional society does this through the scientific atomization of all facets of life, including the disentanglement of these so-called freedoms. The Frankfurt School, of which Marcuse was a member, did just the opposite, blurring the lines and integrating philosophy, social theory, and politics in a theory of social change for the present age.

Marcuse's work exposed that with the technological transformation of the world, a mental one has followed suit (p.66). Modernity has charged the operational into a political function. The transitive meaning found in the original dialectical relationship between *Eros* and *Logos* is thus lost. And a much-simplified paradigm of positivistic relations results in an institutionalized concealing of ontological facts that are condescended as teleological.

To redeem itself, Marcuse concludes that real freedom and well-being depends on the liberation of *all* operationalized, one-dimensional needs and satisfactions that have been imposed. He calls this the "Absolute Refusal" of one-dimensional society. To do so one requires "new modes of realization... corresponding to the new capabilities of society." (1964, p. 4).[46] This is the beginnings of his proposal which concurrently borrows, as we have seen, from concepts developed by Marx and Freud as well as the ancient Greeks' understanding of technology. With

[45] This can be stated today in the case of sustainable development as it was then about advanced industrial society. The main difference, however, is that sustainable development was first enacted as part of the UN export program of supplying technological development around the world as part of a convergence scheme intent on the objective on unifying the world under one world order—a technological one. This is one of the primary arguments of this thesis.

[46] I am arguing that, the ecologists were proposing just this. The co-opting of the concept of sustainability and its consequential condensation to the adjective "sustainable" are outward expressions of the WCED's operational reading of the protest, which was fundamentally an aesthetic one in the Marcusian sense.

these tools—and with the determination *not* to solve the problem on *operational* or technical terms—Marcuse demands that we create a new *techne*—one that understands a different way of being, is infused with community-borne meaning, and uses an aesthetic paradigm of truth, which he calls the aesthetic consciousness.

Feenberg states:

> Marcuse's new techne would enhance life rather than inventing new means of destruction. It would be environmentally aware and treat nature with respect (Marcuse, 1992). Recognition of humanity's place in the order of revealing requires valorizing the sensibility and imagination through which the potentialities of things are manifested. A receptive—Marcuse calls it a "feminist"—subjectivity would animate the new techne, replacing the aggressive subject of technological rationality (Marcuse, 1974). (Feenberg, p. 4)

Thus, the affirmation of life—and not the control of it, as in one-dimensional society—must become part of the material base of society. Marcuse argued that to engage in this liberating posture we would have to go back to an earlier form of conceiving the world, one which used substantive universals. For the original problem between one- and two- dimensional society was the simplification and the "transmutation of the idea of Reason" (1964, p. 123). As such, truth commits to and engages with human existence. It is human—if a man has learned to see and know what really is—he/she will act in accordance with the Truth.

This comes into contrast with science which makes no value judgments. What is simply is. Ancient Greece with its implied final causes gave two dimensions to the world. These are ontological conditions and with this ontology, a completely different universe to today's functionalized world opens up: for example, epistemology now implies ethics, for if you act in accordance with the Truth, then you must act ethically. And, on the other hand, ethics becomes epistemology.

Feenberg explains:

> Under the sign of aesthetic discrimination, the affirmation of life guides technical practice toward the choice of peace and harmony in the order of nature and human

affairs (Marcuse, 1969, 24). There is a receptive aspect to this process: the imagination does not merely create its objects *ex nihilo* but responds to the demands of nature, of what lies at the limit of human power (Marcuse, 1972, 67-69). Specific possibilities which contribute to the affirmation of life constitute the modern equivalent of the essential, and call forth the technologies appropriate to their realization (Marcuse, 1964, 239-240). The submission of technology to these "essences" gradually reshapes it into an instrument of liberation, suited to a free society. Technology comes to resemble *techne* but in a modern context where judgments are based not on metaphysical assumptions but on human experience. (1999, p. 10)

This is where most of the critics have found their attack on Marcuse. For what is beauty? What are aesthetics? Are they not open to particular interpretations, and thus impossible to judge soundly?[47] Besides, don't aesthetics have more to do with superficial issues in the arts as opposed to cruelty, control, and misery that Marcuse is lashing out against?

On a close reading, these questions are out of context. In fact, they are operational questions, the kind that Marcuse warns against. Marcuse's aesthetic radicalism goes beyond the modern, abridged concept of aesthetics, and has its philosophical roots in Kant and the early Hegel. Feenberg explains:

> Marcuse's aesthetic is historical, reflecting the specific qualities of perception that can be actualized at a given stage in human development. What people "feel" in their encounter with the real is conditioned by what they "are" in their historical moment. This is not a matter of opinion or taste in the usual sense, but a deeper connection to forces in reality that resonate in the human psyche and pattern experience in one or another coherent form. The shape our world takes, what is foregrounded as significant and what backgrounded as unimportant, is an aesthetic matter in this historically informed sense. (1999, p.12)

Thus Marcuse searches for a substantive alternative to the existing society. His point is that our implicitly competitive society offers mixed messages to its people. Sure, the structure of

[47] Keep in mind, all these are technical questions.

world politics, polarized between capitalism and communism while Marcuse was writing, was overtly aggressive, yet at the same time capitalist society "delivered the goods," distracting us from its dominating structure. According to Marcuse, once we recognize this paradox of our biased social structures, we can reduce the turmoil inherent in our historical time and remove the negative aspects and remain only with the good aspects of modern society.

Marcuse, through the aesthetic viewpoint, wants to refocus our perception on reality by seeing the many ugly elements of society that are concealed by it—for example, the poverty, aggression, and the social misery. Only once we realize how illogical these are in respect to the amount of wealth and technological advance with which we live, then we can begin changing society. Thus Marcuse's aesthetic consciousness fosters the perception "in which the absurdities and inhumanities of our society are sharply focused rather than relegated to the background and ignored. These writings are, in short, "aesthetic interventions with political intent" (Feenberg, 1999, p.12).

Another attack on Marcusian philosophy has brought about the question of appropriateness of aesthetics versus ethics as his philosophical tool. For is it not ethics that is best applied to human cruelness and indifference, the problems of society? However, in Marcusian terms ethics do not guide or create a new vision necessary for the "Absolute Refusal" that he proposes.

To Marcuse, the field of ethics has two major faults. Firstly, it merely creates a set of rules that can be implemented operationally *based on the existing rationale*. This was unacceptable to Marcuse, for one-dimensional rationale itself is so unethical, that how could ethics be trusted when in the society we live in, "the rational accomplishments [of advanced technological society] conceal the irrationality of the whole" (1964, p. 190).[48] Marcusian dialectic aesthetics, on the other hand, enable one to judge the state of affairs through the use of the

[48] Marcuse would go on to clarify this point with examples:
... the scientific approach to the vexing problem of mutual annihilation—the mathematics and calculations of kill and over-kill, the measurement of spreading or not-quite-so-spreading fallout, the experiments of endurance in abnormal situations—is mystifying to the extent to which it promotes (and even demands) behaviour which accepts the insanity. It thus counteracts a truly rational behaviour—namely, the refusal to go along, and the effort to do away with the conditions which produce this insanity. (1964, p. 188)

negative, the possible worlds. And secondly, ethics are generally applied recipe-like after the fact, whereas Marcuse is trying to clear up the contemptuous paradoxes of technological society via an "Absolute Refusal" from anything less, and infusing them with meaningful base against human suffering and towards the overall benefit of society. As he says, "it would make no sense to give a prescription for the behaviour of people in a free society which does not yet exist. That's a contradiction in itself."[49]

While at first glance, Marcuse's "science with a consciousness" could seem radical in lieu of today's atomized world of sciences, there are numerous examples of the viability of this solution present today. For example, the field of medicine has this value-ladenness inherent within. It is science with a purpose—for the betterment and care of mankind. Architecture is based on a similar model. Neither have been "completely modernized" on the "value-free" pattern both Heidegger and Marcuse deplore" (Feenberg, 1999, p. 10). And yet they exist today under quite "normal" conditions.

Marcuse suggested that we must forgo the conclusion of value-freeness given to science and technology. For essentially it is not free of values. Therefore we must reinvent a technological society whose material base is composed of values are good for society as opposed to bad. This is a civilizational project. Feenberg comments:

> As Marcuse sees it, the demystification and critique of this supposed "value-freedom" is the theoretical preliminary to the reinvention of technology. Technology must appear as a civilizational project and not as an expression of pure rationality in order to be brought under the aegis of humane values... [L]iberation is a function of the self-consciousness of the technical subject, that is, we moderns. Once the question of technology is posed on these terms, it is possible to answer it in a constructive manner. (1999, p.10)

In conclusion, Marcuse's contribution to the philosophy of technology is twofold. Firstly, he made it clear that everything treated as a technologic problem is a dead end. He showed that there is no transcendental, radical change within the realm of the technological; if you formulate

[49] For more on this please turn to Hartwick (1981).

everything as a technical problem, you stabilize it and your only possibility for change is quantitative or economic. He reveals that there are limitations to a technical standpoint despite the fact that through technology, everything can be "solved." Secondly, he brought to the forefront the notion that technology can be constructed to serve a different form of life. Technology as such is not a means to an ends, as Heidegger had conceived it. It shapes the way we conceive the world. Once it internalizes an aesthetic dimension, then it can begin with a new age of history, for the reconstruction of the technical world would mean a reconstruction of human life. This was the qualitative change that Marcuse fought for.

By taking these two steps, Marcuse makes an important departure from the gloomy essentialist stance generated by Heidegger and opens the path for a critical theory of technology, one that has the basic outline that Critical Theorists have been using since his time. His inclusion of the political into the philosophical shows a move that breaks with the modern scientific model of isolating each discipline into its own separate sphere; yet, coincides with an important scientific model very much alive today, the medical sciences.

Marcuse also creates a breach within the tradition of Critical Theory. For unlike those that precede him, he disbelieves that there will be revolution from below, thus ruling out any reformism. In fact the only possibility for change comes from without, from the:

> ... outcasts and outsiders, the exploited and persecuted of other races and other colors, the unemployed and the unemployable.... Their opposition hits the system from without and is therefore not deflected by the system; it is an elementary force which violates the rules of the game and in doing so, reveals it as a rigged game... The fact that they start refusing to play the game may be the fact which marks the beginning of the end of a period. (1964, pp. 256-257)

Kellner remarks that the heart of the matter is within the destructive tendencies of capitalism's most celebrated achievements:

> [Marcuse] sees irrationality in its self-proclaimed rationality. He maintains that the society's prosperity and growth are based on waste and destruction, its progress fuelled by exploitation and repression, while its freedom and democracy based on

manipulation. Marcuse slices through the ideological celebrations of capitalism and sharply criticizes the dehumanization and alienation in its opulence and affluence, the slavery in its labour system, the ideology and indoctrination in its culture, the fetishism in its consumerism, and the danger and insanity in its military-industrial complex. He concludes that despite its achievements, "this society is irrational as a whole. Its productive is destructive of the free development of human needs and faculties... its growth dependant of the repression of the real possibilities for pacifying the struggle for existence—individually, nationally, and internationally. (1964, pp ix-x)

Yet in the end, he states that the possibility of this happening is remote. "The chance is that, in this period, the historical extremes may meet again: the most advanced consciousness of humanity and its most exploited force. It is nothing but a chance" (1964, p. 257). So while he begins on a note of hopefulness, *One-Dimensional Man* ends somewhat abjectly, stating:

> The critical theory of society possesses no concepts which could bridge the gap between the present and its future; holding no promise and showing no success, it remains negative. Thus it wants to remain loyal to those who, without hope, have given and give their life to the Great Refusal. At the beginning of the fascist era, Walter Benjamin wrote:
>
> "*Nur um der Hoffnunglosen willen ist uns die Hoffnung gegeben.*"
>
> It is only for the sake of those without hope that hope is given to us. (1964, p. 257)[50]

Marcuse's philosophy marked the social movements of the 1960s and 1970s. He would be followed closely by several philosophers. In the next section we look closely at the lifework of one of his students, Andrew Feenberg who would make several important adjustments to his teacher's work. Feenberg would also comment on the former's recent loss of popularity as systemic. "If Marcuse already seems to come from another era, it is the consequences of the

[50] To be fair, his outlook after visiting the Vietnamese delegation, the students in Paris, and the Cuban revolution was more upbeat and gave him what he called "hope"—albeit from outside the system—in his *An Essay on Liberation* he states, "The Cuban revolution and the Viet Cong have demonstrated: it can be done; there is a morality, a humanity, a will and faith which can resist and deter the gigantic technical and economic force of capitalist expansion" (1969, p. 81).

increasing resignation of intellectuals in the West, less and less able to imagine a truly radical break with the present" (1964, p. 254).[51]

Marcuse's fingerprints appear all over this thesis. For in questioning sustainable development, I am questioning the technocracy that created the term sustainable development, their recipe-like formula for "a better" future, their use and abridgement of the words sustainable and development, and the wealth and poverty that their system helps to create. My project is fundamentally both philosophical and political, and its purpose, like Marcuse's, is to recognize the absurdity of technological rationality, reduce the turmoil present in our time and take a step towards removing the negative features present today within technology and replace them with positive ones that benefit civilization as opposed to controlling features.

With this in mind, it is preferable to see this text as one that contrasts one-dimensional with multidimensional thought and behaviour. For in Marcuse's usage the adjective, one-dimensional, describes practices that conform to pre-existing structures and norms. This comes in contrast to multidimensional discourse, which focuses on possibilities that transcend the established state of affairs. Sustainable development is at risk for both of its concepts—sustainability and development—offer the possibility of multiple readings, yet the two concepts are paired down into a conceptually operational state by through a technological manipulation.

Marcuse's aesthetics are a first step to freeing them again. But to do so takes an approach that is both Marcusian and not Marcusian at the same time. And this is the approach I take in this thesis. For the theoretical analysis to describe the situation in advanced industrial society is still as pertinent today as it was when it was written, and thus this thesis takes liberally from it. However, Marcuse's final pessimism, reminiscent of Heidegger's, is unacceptable. Technology can be changed from within. The next section of this chapter investigates how and where we can find this possibility for change, and why it is necessary in the case of sustainable development.

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[51] For more on this interesting critique of Marcuse, please look to the 1987 *Marcuse: Critical Theory and the Promise of Utopia*. Edited by Robert Pippen, Andrew Feenberg, & Charles P. Werbel.

1.5 Feenberg's Approach

Andrew Feenberg's teacher, Marcuse, had fought against Heidegger's essentialist view on technology. Through a dialectical aesthetic stand, he showed that technology was not essentially controlling or dominating, or in fact essentially *anything*. He could do this because instead of taking the problem of technology via a macro perspective that most of his predecessors had done, Marcuse showed the promise and potential of a technology that could be brought under the control of the lower-end actors outside the realm or reach of technological society. By avoiding the determinist argument he was able to expose that it wasn't so much technology *per se* that was essentially an evil or a means for control, but rather the technocracy, the socially constructed hierarchy behind technological society, that had dominated society through technology.

Questioning Technology follows the trend of philosophy of technology begun by Marcuse. Feenberg begins rather optimistically, stating, "As a new century begins, democracy appears poised for a further advance. With the environmental movement in the lead, technology is about to enter the expanding democratic circle" (1999, p. vii). Taking the constructivist position to heart, Feenberg's starting point is that technology and democracy are inseparable in today's society. If we fail to realize this, then we are missing the crux point of technology:

> Insofar as we continue to see the technical and the social as separate domains, important aspects of these dimensions of our existence will remain beyond our reach as a democratic society. The fate of democracy is therefore bound up with our understanding of technology. (1999, p. vii)

Feenberg's lifework retakes the Marcusian thought process by finessing some of the concepts of his teacher and introducing several sophistications and syntheses which will become relevant to the discussion of technological society since the 1980s with the advent of sustainable development. Furthermore, through a new conception of technology which undoubtedly comes from Feenberg's experience with working on the internet and modern technologies,[52] optimism

[52] Feenberg was an early innovator in the field of online education, a field he helped to create in 1982. He led the TextWeaver Project on improving software for online discussion forums under a

for a participative and democratic future via hands-on work undertaken by lower end actors interested in the technological system, abound through his work.

Like his teacher, Feenberg considers that once technology is brought under democratic rule, then we could live under a completely different world, where technology is used for emancipation rather than a controlling or dominating means. The big difference between Marcuse and Feenberg would be that while the former thought the change would only take place from the outside, like the indigenous, traditional societies of the third world, Feenberg saw it happening from within and from below, in the lower-end actors involved in the technological sphere.

Feenberg's positing of the environmental movement as at the cusp of this revolution comes from his and Marcuse's work with the New Left. Together, they had visited and experienced the power of the counter-cultural movements of the 1960s first hand in their campus lives in California as well as in their participation in May Events in Paris.[53] Together, they had seen the power of a grassroots cultural movement usurping the hegemonic technocracy against all odds. Of all these movements, which included the feminists, the gays, the Yippies and the Trotskyites, to name a few, the environmental movement had grown throughout this time. To Feenberg it represents the most advanced movement pushing for a new kind of democracy in the face of an ever more powerful technocracy. The environmentalists are interest-laden players in the system. One of the great differences with all the other new movements of the new left, like the feminists, the gay liberation and student movement in Paris, is that the hegemonic system has been dependant to a large extent on its natural environment, yet always considered it an outside, rather than an inside, factor. Thus the hegemonic interest in the land has overlapped with the people's interest in living in a clean environment. Feenberg saw that the technocratic pursuit of happiness and autonomy was infringing in a real way on the quality of life of its peoples and foresaw, as we will in the following chapter on the foundation of Greenpeace, that in the realm of the environmental movement, the fight for democracy would take place.

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grant from the Fund for the Improvement of Post-Secondary Education of the US Department of Education. He has since published extensively on the subject. For more on this please turn to "Whither Educational Technology?" Published in *Peer Review,* vol. 1, no. 4, Summer 1999

[53] For a description of Feenberg's partaking in the May Events, please see Feenberg (1999).

The discussion of all this is to come in the following sections of this chapter, but before moving on to the details, let us look at the issue globally. If we are to take Feenberg's assumption to heart—that the environmental movement is the leading edge of this emancipation from the ties of technological society and its modern technocracy—, a logical two-step sequence of questioning goes something like this:

1) What is the environment's most successful incorporation into mainstream politics?

2) What aspects of the environmental movement were subsequently co-opted into the mainstream discussion of technology and politics?

These are precisely the questions concerning sustainable development that I am asking, the title and central tenet of this thesis. For if Feenberg is correct, then, we should be looking at the environmental program's successes in its democratization of modernity. And by following his theoretical lead, this is precisely what I am attempting to do: examine what has been considered the environmental movement's greatest political success.

The answer to question one, then, is its inclusion by the United Nations through the Brundtland Report ranks as its greatest achievement in terms of affecting political change on a global scale. From this we may turn to the second question. My query is, with twenty years gone by of co-option: was this really a democratization of technology? The only way of examining this is to see how the environmental movement was co-opted into the WCED report, through a thorough examination of the said document.

This part of the chapter simultaneously highlights Feenberg's Critical Theory and concludes by offering my contribution to the field as I extend the theoretical framework of Critical Theory onto the particular project of the Brundtland Report. For while Feenberg's optimism for a new democratic relationship with technology based on the environmental movement is encouraging, faced with the continued technocratic leanings of today which are wrapped up within the Brundtland Report's understanding of the very same environmental movement that Feenberg claims is on the leading edge of bringing technology into the expanding democratic circle, then perhaps we need to reformulate and reposition the base understanding of the

environmental movement and its integration into the political sphere before we can afford to be so optimistic.[54]

As this section seeks to understand and present Feenberg's thought. I have split this section into five subsections:

In section one, *The Marcusian Nature of Questioning Technology* I examine his retaking of Marcusian Critical Theory, including its anti-deterministic stance; section two, *The Environmental Debate* discusses his positing of the environmental movement as the leading element in the democratization of technology. Here we dig into the discussion between two of the environmental movement's most divergent thinkers, Paul Ehrlich and Barry Commoner as they struggle to define what issues the environmental movement should stand for; section three, *Critical Theory Meets Science and Technology Studies* engages in finding how Feenberg's work with Critical Theory intersects with the findings of his peers in Science and Technology Studies. The notion of scientific objectivity and scientific neutrality are discussed. Section four, *Domination and Resistance: Democracy and Agency*, discusses how these two concepts are intertwined and understood under Critical Theory and Constructive Technical Assessment and their relationship to the question I am posing here on sustainable development; section five, *Critiques on Feenberg* is my final look at Feenberg's work where I discuss the critiques his work has garnered,

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[54] Certainly there have been numerous examples of constructivist-democratic experiments occurring in numerous communities based throughout the world, even many which are occurring within democratic institutions. These examples are interesting tangently in a twofold way in respect to my thesis. Firstly, they give concrete examples of democratic rationalizations that Feenberg bases his work upon, that is to say they show how democracy can indeed be instigated by lower end users and transferred back into the sphere of the technocracy affecting change; and secondly, they show that this is indeed a trend that has begun at the grassroots level, and can and has spread to the national level. However, while these experiments support the theory I am following, I am taking this to the level of the supranational. The reason for this is that in today's global world, the epitome of centralized control is no longer the nation state—in fact some would argue, like subcommandante Marcos that the nation state is just the *police state for the corporations*:
In the cabaret of globalization, the state goes through a striptease and by the end of the performance it is left with the bare necessities only: its powers of repression. With its material basis destroyed, its sovereignty and independence annulled, its political class effaced, the nation state becomes a simple security service for the megacompanies". From ("Sept pieces du puzzle neoliberal: la quatrieme guerre mondial a commence, le monde diplomatique. (1997, pp 4-5).
On the other hand, the metastate, which has taken form of the United Nations and their political offshoots, is the new hegemony of this millennium, and because of that I am investigating the work of the United Nations and the WCED. For those interested at examples taking place at the national level, please see Rip, Misa & Schot (1996).

particularly from the left, and his defence of these attacks. From there I make some overall conclusions on the chapter and show how Feenberg's Critical Theory, Marcuse's *One-Dimensional Man* and Heidegger's "The Question Concerning Technology" lead into my question concerning sustainable development. The first four points are key issues at stake with the United Nations' co-option of the environmental movement as understood by the World Commission of Environment and Development's (WCED) Brundtland Report as we will see in this and the following chapters of this thesis; the fifth is to give balance and perspective.

The Marcusian Nature of Questioning Technology

To get to the critical point of Feenberg's discussion on democracy and the environmental movement, we need to backtrack a little and retake where we left off with Marcuse. Feenberg generally agrees with his teacher on most elements of his philosophy. However, while Marcuse waffled on an external force—one that had not been co-opted like the proletariat by a society that "delivers the goods"—as a saving power to thwart the spread of technological society, Feenberg sees it more present, particularly in the groups of the New Left who are not external to the society, nor bogged down by traditional or dogmatic roles of the Marxist Left. For Feenberg, the means of change lies within the system.[55] On the other hand, as a self-confessed, left-leaning intellectual, he certainly places little hope on the market-based movements of the right to fill these purposes.

The possibility of the New Left to destroy today's technocratic structures and to usher in the advent of a more democratic political sphere is hinged on its capacity to expose and communicate massively the preposterous nature of the present political system. Feenberg's *Questioning Technology* similarly has this aim, first showing the absurdity of the present political

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[55] Like Feenberg and unlike Marcuse, Hardt and Negri figure that it is time to begin looking inside the system, and no longer outside for the solution to technological society, one that they call "Empire."

> ... the potentials for liberation... exist *within* Empire. We should be done once and for all with the search for an outside, a standpoint that imagines a purity for our politics. It is better both theoretically and practically to enter the terrain of Empire and confront its homogenizing and heterogenizing flows in all their complexity, grounding our analysis in the power of the global multitude. (2000, p. 45)

hegemony, and then explicating the philosophy of the environmental movement which ties into his Critical Theory, both which seek to affect change therein.

According to Feenberg and Barry Commoner, who we will shortly see, of the entire spectrum of the New Left, the environmental movement has the right tools, for it is based on what can be described as the cybernetic knowledge system, essentially a holistic or inclusive one, which matches the state of modern technology—that of leading-edge computing cyberspace. As the two systems match in their understanding of complexity (remember, Heidegger built his system on the large electrical grid systems of the postwar energy boom. To him, as they did to Weber, they resembled an "Iron Cage" of domination and thus he ended with a pessimistic philosophy of technology), then there offers a piece to the puzzle of how the two have had until now opposing views on the result of technological society. Feenberg's cybernetics and Heidegger's grid systems are systemically dissimilar, and their philosophic counterparts offer equally ranging differences and opportunities for the actors therein. For example, the former system was seen as an exoskeleton that emanated over the planet. In its wake, humans could do little to interact with the system other than to buy in, or go back to the caves.

Marshall McLuhan, a media theorist and technological determinist, claimed pessimistically that in lieu of dominant nature of this technological system:

> Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires. (1965, p. 46)[56]

However, with the cybernetic model of the internet that followed in the 1980s until today, Feenberg took a more creative and multi-levelled approach to questioning technology which he

[56] A read of McLuhan's work shows several similarities between him and Marcuse. To begin with, McLuhan's preference for "exploration over explanation," which he explains by stating that "to define is to kill, to suggest is to create" in many ways is parallel with the power of Marcuse's aesthetic system of negation. The discussion on McLuhan could go on, however, due to my focus on the social consequences of technology of sustainable development and not on the consequences of media *per se*, I will make a brief recommendation of further reading: for those interested in following the work of the media-savvy McLuhan, aside from his own work, two of his prodigies, Paul Levinson and Jay Bolter offer good starting points. The former offers a comprehensive look and application of his teacher's work in Levinson (1999). Bolter & Grusin (1998) offers a fascinating discussion on the concepts of *immediacy* and *hypermediacy*, what he calls the twin logic of remediation.

called democratic rationalizations, a term I will describe in detail in a further subsection of this chapter.

Like Marcuse, Feenberg questions technology through both philosophy and politics. For technology as such is a slippery subject. By definition it appears non-human, and thus traditionally skipped by the humanities. Yet its many successes in the early part of the 20th century have resulted in the fact that technological decisions have affected more and more of social life. Consequently, technology while seemingly benign is heavily political and social.

> From this one can draw out diametrically opposed conclusions: either politics becomes a branch of technology, or technology is recognized as political. The first alternative leads straight to technocracy: public debate will be replaced by technical expertise; research rather than the uninformed opinion of the voters will identify the most efficient course of action. (1999, p. 2)

Feenberg steers away from both the dystopian essentialist and utopian positivist versions of technology, and looks at the socio-political aspects that result from a technology that has grown to become a major player in the modern socio-political sphere. His take on technology mirrors the active stance from within the system that Hardt and Negri propose in *Empire*:

> We need to consider also the power of the *res gestae,* the power of the multitude to make history that continues and is reconfigured today *within* Empire. It is a question of transforming a necessity imposed on the multitude—a necessity that was to a certain extent solicited by the multitude itself throughout modernity as a line of flight from localized misery. (2000, p. 47)

Perhaps Feenberg's first glance at dissention and action versus the system of global dominance was during the 1960s where he saw how, as he states: "the nuclear energy and the space program gave way to technophobic reaction. But it was not so much technology itself as the rising technocracy that provoked public hostility" (1999, p. 4). [57]

[57] Feenberg clarifies the term "technocratic" as "a wide-ranging administrative system that is legitimated by reference to scientific expertise rather than tradition, law, or the will of the people. To what extent technocratic administration is actually scientific is another matter. (1999, p.4)

By opening up the debate to the socio-political aspects of technological society, Feenberg, like Marcuse, retakes the same steps to disprove the workings of determinist theory. For it is not technology per se that is the problem, rather the control of it by a regimented hierarchy, relating technical domination to "social organization and argue[ing] that technology has no singular essence but is socially contingent and could therefore be reconstructed to play different roles in different social systems" (1999, p.7).

The problem goes back to the very basic question of "who rules?"—clearly here we can see the political tie-in. The corollaries then appear asking: "how do they rule?" and "why do they rule?" Subsequently the bipolar terms of freedom and democracy will face-off against their autocratic authoritarian counterparts like unfreedom, undemocracy which are bound up with the modern term of technocracy.

Using constructivist models which examine the complex web of social alliances behind the design process, and the work of cultural historians who have mapped the histories of the localized individual against the system,[58] he leaves us with the optimistic yet goading view that given a different society, technology could be a different entity. The conclusion to this is that if we can "loosen up the public vision of technology, introduce contingency into it, technical elites will have to be more responsive to a democratically informed public will" (1999, p.8).

The key moment in social constructivism as per Pinch and Bijker, the primogenitors of the movement, is the process of what they call "closure" which ultimately adapts a product to a socially recognized demand and thereby fixes its definition. The resultant "black box," is an artefact that is no longer called into question but is taken for granted. By looking back with the serious, all-knowing Janus face, the social origins are forgotten, and the object seems, as Feenberg states, "purely technical, even inevitable" (p. 11).[59] And with that comes the binary

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[58] Feenberg claims that the cultural studies have helped mould his perception of Critical Theory. For those interested in following up on cultural histories, please see one of the foundational studies of the field by Chakravarty (2000).

[59] Bruno Latour (1988) discusses the problem as it relates to scientific facts. He uses the metaphor of the two faces of Janus, the one that looks back is the one that looks on closure, certain of the answer, while the one facing forward is full of questions and uncertainty, the latter is science in the making.

illusions of dystopian determinism and positivism with its idea that the scientific paradigm and its many artefacts and political state are *a priori* transcultural universals. At once this serves as a justification for and a need to find a new way of analysis that resists this determinism.

This is the first step on my investigation into the realm of sustainable development. And perhaps obvious, it is worth mentioning that my starting point is that the United Nations' version of sustainable development while black-boxed with consensus in 1987 by the Brundtland Report is not a necessary technological artefact, nor necessarily correct. And with that I would like to reopen the debate. For while it could seem that this is the inevitable result of a science and technology that is constantly improving and ameliorating the conditions of life on the planet, I would like to halt this thought process and open up the black box to see the social and non-scientific actors that have been actively involved in the process. The starting point for sustainable development, as per the Brundtland Report, was to see if there was a way in which we can at once end poverty, as well as improve our quality of economic life on the planet. I reopen the social struggle behind this issue, tear open the black box and see what comes out in chapter four. For now, let us examine the second and third aspects of Feenberg's work, and my proposal of using it as a heuristic in this question of sustainable development.

The Environmental Debate

Feenberg shows how the environmental discussion while seemingly a unified front on the outside was really fragmented within. Through examining two of the main figures in the debate, Paul Ralph Ehrlich and Barry Commoner, and their polar ideologies, Feenberg explores how their discourse on the conservative side boils down to essentially an acceptance of the *status quo* in terms of the technocratic, representative political powers, while on the radical side demands a complete renovation of the political sphere, pushing for a participative or, as he later describes, a deep democracy.

This section examines the argument within the ranks of the environmentalists in depth, for it leads us to at least three important and interrelated realizations. Firstly, we can see that there was indeed a tension within the United Nations and their affiliates at the WCED that was

caused by the lower end actors in the environmental movement—that is to say that change that was instigated by the lower-end actors enabled a radicalization of the concept of democracy in the technocratic structure. Secondly, we can trace how this tension that grew with the community at the United Nations was operationalized—in the Marcusian sense—and resolved and brought into consensus with the United Nations to create the WCED with their charge to come up with a mandate for the future. This, in turn resulted in the writing of *Our Common Future*; which was published under a "unanimous" consent by at lease the members of the WCED.[60] Finally, through questioning this document we are enabled to see which environmental aspect—the conservative or the radical—did the United Nations co-opt.

This final question leaves us with an interesting task. If the environmental movement at its most critical was not so much about the environment as it was about replacing today's technocracy with a participative democracy, then we can see what kind of democratic position the United Nations takes. This is all to say that we will be able to do an aesthetic analysis in the Marcusian sense of the existing democracy versus its potential.

The debate between Paul Ehrlich and Barry Commoner began in the 1970s and has continued until today and remains hinged on how to control—again we are confronted with the political nature of the issue—the two keys areas for environmentalists: population and pollution. Both argue on a political standpoint and place the focus of the blame on one of two parties: the former fights for a control of the individual, under the rationale that the enemy is our self, the individual consumer. This discourse ends with the result that our consumption and procreation rates must be controlled through national and supranational governmental action. On the other hand, the latter looks to control the polluters and the undemocratic nature of their technologies. In essence Commoner seeks to gain social control of technology, in particular major corporations which produce messy, environmentally unsafe and damaging products.

Both are prominent scientists. Ehrlich, has been a professor of Population Studies at Stanford University and author of numerous books, including *The Population Bomb* and *How to*

[60] This was the word used by Harlem Gro Brundtland in her introduction. For more, please turn to p. xiv of the WCED (1987).

be a Survivor, while Commoner has been equally prolific with his writing, publishing amongst many titles, *The Closing Circle*, a bestselling book advocating for the social control of technology. He was also the Director for the Biology of Natural Systems at Queens College and ran for President with the Citizen's Party in 1980.

Feenberg chooses their polemic, because through it we can see how the environmental argument:

> ... moved beyond scientific disagreement to embrace two radically different rhetorics and strategies. Their argument, which took place at the very beginning of widespread public concern over the environment, adumbrated the main themes of later controversies over humanism and anti-humanism, democracy and dictatorship, North/South disputes, and so on. (1999, p. 46)

I bring out the argument for a similar reason. For the purposes of this investigation, it is crucial to understand the options and possibilities for sustainability—a concept necessarily tied in with the environmental lobby—which the United Nations' World Commission on Environment and Development could have expropriated as part of their report. There is a promise within re-examining the debate under the lens of our questioning sustainable development: once we delineate the Marcusian potentials within the continuum of the environmental lobby, we can then re-examine the results of *Our Common Future* to see which elements were kept and which were excluded. From here we can make a critical analysis of the document and suggest that without the inclusion of its more radical potentials, the document loses that which is truly counter cultural in both the environmental and political aspects of the case.

The environmental argument is a crucial one, since in *principal* our common natural ground it affects all of us—and that is to say both the lower end actors of the technical hierarchy as well as the upper level ones—, while not equally, at least to a certain extent.[61] This question of the health of the environment has been a growing issue since the industrial age. As it reaches a high point in today's world "it offers the hope to unify humankind beyond historic rivalries in a more fundamental confrontation with nature itself" (Feenberg, 1999, p. 48). Yet clearly it has not

[61] For more on the so-called space wars, please see Zygmut Baumann (1998).

yet done this. Today we remain divided as ever, not from the need for environmental protection, but from an agency over the style thereof.

Ehrlich and Commoner represent the two ends of the continuum of the debate. Ehrlich reformulated the Malthusian proposal into what he termed the "Population Bomb," (note the analogy to the Atomic Bomb, the other great threat of the Cold War era in which he wrote) a disastrous overpopulation of planet earth which consequently resulted in mass starvation and the end of resources. He suggested that there were only two ways out of the disaster: either a "birth rate" or a "death rate" solution. As Ehrlich's standpoint was to achieve a Zero Population Growth, it was mandatory that "everyone" would join the birth rate solution—that is to say that we limit our rates of reproduction—, although inevitably the finger was pointed at the minorities, locally the blacks in the US and minorities elsewhere in the world, who were associated immediately *as* the threat. The politically heated area of eugenics has remained just around the corner to this inevitably political discourse.

Internationally, any people unable to feed themselves were to be left to their imminent "death rate" fate. For according to Ehrlich it was a kind of short term pain for long term gain:

> Finally there is the last tragic category—those countries that are so far behind in the population—food game that there is no hope that our food aid will see them through to self-sufficiency.... India is probably in this category. If it is, then she should receive no more food. (1968, p. 160-161)

He later followed up this statement with:

> Coercion? Perhaps, but coercion is a good cause. I am sometimes astounded at the attitudes of Americans who are horrified at the prospect of our government insisting on population control as the price of food aid. All too often the very same people are fully in support of applying military force against those who disagree with our form of government or our foreign policy. We must be relentless in pushing for population control around the world. (Ehrlich, 1968, p. 166)

Despite accusations of modern eugenics, many scientists have come to back Ehrlich's work, including former vice-president of the United States of America, Albert Gore. Yet of all,

perhaps it is conservative environmentalist Garret Hardin's defence of the position to stop aid to countries that cannot feed themselves that offers the most resounding impact on that particular position.[62]

> How can we help a foreign country to escape overpopulation? Clearly the worst thing we can do is send food. The child who is saved today becomes a breeder tomorrow. We send food out of compassion, but if we desired to increase the misery in an overpopulated nation, could we find a more effective way of doing so? Atomic bombs would be kinder. (Hardin, 1971, p. 1792)

The Ehrlich camp put forward the need of getting a world government (i.e. the UN or the US foreign service) to do the work. Yet as Feenberg muses:

> Are these twisted proposals irrelevant relics of a bygone era? Or are they typical consequences of the waves of impotent universalism breaking over the shoals of powerful particularisms? World government in the interests of population control is fraught with dangers anticipated in the earlier disappointing experience with the concept. This is because only the developed countries have the capacity to enforce their will. Furthermore, it is primarily in these countries that there is significant popular support for coercing poor nations into population control programs. The kind of world government which would use force to improve demographic controls would be a government *of* the developing nations *by* the developed ones. (1999, p. 53)

On closer inspection, we can see that this Malthusian position treats society as a natural object ruled by deterministic laws. Ehrlich's "population bomb" simplifies the issue into a merely biological process, one that states human reproduction is simply out of control dismissing all the social, political and historical issues surrounding the problem. At the same time, it posits the

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[62] Garret Hardin's December, 1968 paper "The Tragedy of the Commons" published in *Science* was an early and well-known attempt at attacking the principle of "commons"—oceans, rivers, and wild fish stocks to name a few—that without management were being over used. His proposal was to install centralized government and restriction on use of the commons. The author was a proponent of privatization and followed the logic later covered by Richard Dawkins in his 1976 book on evolutionary theory, *The Selfish Gene*. In fact, he would later be the one to coin the phrase "nice guys finish last" when discussing the effects of the selfish gene.

deterministic understanding of technology, assuming that economic growth implies more of the same technology—a technology that does not and cannot change. As Feenberg states:

> Short shrift is made of proposals for using less harmful technologies, substituting plentiful or renewable resources for diminishing ones such as petroleum, and achieving a more ecologically compatible conception of prosperity. Hence an increase in human numbers and wealth must bring about a corresponding increase in pollution and resource depletion. (1999, p. 54)

On the non-determinist side of the debate, Commoner invokes the social causes of overpopulation and waste. For Commoner:

> Environmental problems of all sorts, including overpopulation, are effects of social causes inherent in capitalism and colonialism. For example, population growth in the Third World is due not to the natural fertility of the species, but to poverty and high infant mortality rates. European population growth rates declined as prosperity increased in a process known as the 'demographic transition...' (Feenberg, 1999, p. 55)

Commoner's solution was that if high birth rates were a social phenomenon, rather than a biological one, then we must search to resolve the social factors behind high birth rates. If social factors influence reproductive behaviour, we need to create conditions in which those factors favour slower population growth in the poorer countries. This will require not "coercion in a good cause" but massive economic aid. Since the population problem is primarily social and not biological, a social solution is appropriate. (1999, p. 55)

The solution, then, as Commoner suggests is to bring up the quality of life of the poor countries to the levels of that of the rich. Perhaps then the birth rates will go down. Commoner argues this by showing that pollution was in fact a social and not a biological issue. He exposed that pollution levels increased from 200 to 2000 per cent in the twenty years from 1946 to 1966 in the United States. At the same time population grew by only 42 per cent. With this he stated that,

"Population growth in the United States has only a minor influence on the intensification of environmental pollution" (Commoner, 1971, p. 231).[63]

Yes, the enemy was inside us, but not as people, but rather within a wasteful society whose industrial technology had run amuck since the end of World War II. The solution that he put forward was to transform technology "to meet the inescapable demands of the ecosystem" (Commoner, 1971, p. 282). The only way to do that was to remove technology from the profit-making system.

Feenberg notes:

> Now the political stakes in the debate are clear. Behind the contention over scientific issues, behind the dispute over the resource depletion and environmental degradation, behind the methodological disagreement about the biological or social character of the factors leading to the crisis, lies, quite simply, the old debate over capitalism and socialism! (1999, p. 57)

Once we push away all of the extra information, the two positions are defined:

> An approach to environmental problems which treats technology as a thing of nature, fixed and unalterable, ends up treating nature as a social object whenever it is subject to technical control. In the case of population politics the locus of control is human reproduction, which individuals and governments can manipulate through voluntary contraception and involuntary sterilization.
>
> By contrast, an approach which emphasizes the social sources of the problems will prefer to act on the biological mediations indirectly, through the social mechanisms governing institutional and mass behaviour. The intended result may be the same, a better proportion between population and resources and a less polluting society, however, the means to the end are quite different. (1999, p. 59)

[63] This argument was later partially refuted by Ehrlich who stated that it was possible that population increase, even of 42 per cent, could be enough to create a pollution explosion of the magnitude of 2000 per cent due to the agricultural stress of producing for the extra mouths to feed. Both offer some logic to their arguments, although I think Commoner wins out this one.

This is all to say that the choice between the two camps goes beyond the realm of science and enters into the socio-political. Do we vie for a position that opts for social control over the personal—an authoritarian principle—, or personal over the social? In the former, we enable a politics of domination, in the latter we encounter a socialistic democracy in which the control is cast over the institutions rather than the individual.

Feenberg asks if a synthesis is possible between these two radically different positions. The answer is no.

> The divisive class and natural issues cut directly across it, revealing it to be an eclectic combination of incompatible strategies... In a society based on economic inequality, one cannot hope to organize a strong political movement around voluntary self-deprivation. The alternative, invoking the power of the state to lower living standards, has usually served not higher moral ends but the interests of economic and political elites. (1999, p. 61)

In the end, the environmental issue is perhaps rightly summed up by Commoner who states:

> Is it in fact true that environmental improvement is a good so universal in its value that it can override vested interests that contend so bitterly over other issues—such as jobs? The answer, I am convinced, is no. There is usually no way to work out an even-handed distribution of the cost of environmental improvement; something has to give. (Commoner, 1972b, p. 33)

The question then remains: what gives? Do we need more technocratic control over our human and natural assets, or do we need to democratize control of our assets. Commoner and Feenberg assume the answer will be read through two opposing criteria, depending on where you are situated in the class system:

> The capitalist's relation to the environment is shaped by his short-term focus on profits and his ability to shift costs away from himself on to others. Environmental constraints often conflict with popular marketing strategies, such as increasing automotive horsepower, or threaten potentially profitable investment opportunities.

> Pollution appears as an externality in all his calculations, an externality largely suffered by others because he has the means to escape its worst effects privately, by buying air conditioning for his house and car, living in the suburbs or the country, vacationing in unspoiled regions and so on.
>
> Conclusion: capitalism will resist environmental controls until they become unavoidable and then attempt to get others to bear the burden. This theoretical prediction has been a fairly good description of business attitudes in the United States.
>
> Workers' objective position with respect to the environmental is quite different because for them pollution is not an exogenous but an endogenous factor. Workers in the plant suffer the effects of pollution far more than executives in administration offices. Even during the "free period" workers and the poor "pay" for pollution through inconvenience and disease. As these costs rise, the issue is brought home in their daily lives. Here is the vital difference between upper and lower classes in their relation to the environment. (Feenberg, 1999, p. 63)

Commoner was wrong in at least one aspect of his argument. He forecast the unions to embrace the fight, yet only sporadically did they join. In fact the classic Marxist application of the labour-environmentalism movement he imagined never did develop, more likely than not because as we have seen with Marcuse, the workers had been co-opted through the technological system, which had the effect of enabling an easier work day and providing the goods. Yet the error does not diminish the overall argument.

Feenberg's conclusion is that:

> ... the environmental movement must choose between a repressive policy of increasing control over the individual, or a democratic policy of control over the social processes of production (and, I would add, culture). On the former condition, the existing production system can be preserved, along with all the injustices associated with it, for a prolonged period in spite of the environmental crisis. On the latter

condition, this production system must be radically changed through the development of new forms of social control. (1999, p. 69)

If we are to take this at face value, then the environmental crisis represents not only a universal problem for the survival of mankind and other species on the planet, but also a moment to readjust our means of rule. Feenberg sums it up clearly:

> The early seventies gave us a dress rehersal of far deeper crises to come. If there was ever any doubt about the environmental crisis intensifying social and international conflict, that doubt should now be silenced. The environmental crisis, in short, brings not peace but a sword. And precisely for that reason it is not a unifying messianic force though which the human race could join in an ennobling struggle beyond the petty conflicts of history. Rather, it is a new terrain on which the old issues will be fought out, perhaps this time to a conclusion. (1999, p.70)

This is to say that above the environmental movement's work to protect the environment, it has been equally about creating a radical break with the technocratic hierarchy that had developed since the Enlightenment, and particularly in the postwar years. The crux element of the environmental movement, then, is political, not environmental. My thesis thus builds off of Feenberg's and Commoner's proposals and examines the effectiveness of this argument within the founding of the concept of sustainable development, asking if the Brundtland Report absorbed this crucial and necessary aspect of the environmental movement. For we can see that sustainable development as posited by the United Nations is *development*, that is, it retains the name development. But is it *environmental?* Chapter three investigates the former declaration, while chapter four attempts to answer the latter.

If the United Nations absorbed but Ehrlich's position, that of the wealthy capitalist who worries about running short on goods that will reduce his lifestyle, than the solution is already undersold. On the other side of the debate are the poor and disenchanted who want not so much to stop growth, but at least its negative consequences. Which side does the UN choose? As we have seen the two paradigms are not prone to synthesis. Yet the choice between the two is all

important if we are to live harmoniously in a planet of limited resources amid exponential growth and pollution.

The core disagreement of the two camps is how both sides perceive the nature of technology. What Feenberg labels as the fundamental environmentalists cannot conceive technology as different; they fall into a technological deterministic conception, seeing technology as set in stone, and thus more people means more technology, and the planet cannot handle any more of this same technology, so instead of changing the nature of technology, they try to reduce the people who can manipulate it in the future.

In an equation devoid of the human element, it becomes simple market logic of supply and demand, and in this case, every child is a future breeder, and thus should be left to fend for his own. Of course this perspective is ahistorical, and makes no room to factor in the role of foreign colonizing forces to tax a pre-existing society into its present hybrid:

> Ehrlich's definition of overpopulation and the diminishing returns hypothesis work together to depoliticize environmental issues. He wants to argue for a politics of survival beyond all historic considerations of class and national interest, but in fact he presupposes a specific constellation of interests, that of modern capitalism and neo-imperialism with their technology: "the animals that occupy the turf, behaving as they naturally behave." This is why he ends up seeking a biological solution. (Feenberg, 1999, p. 59)

The Commoner argument has at its base is a non-deterministic view on technology which I share for the reasons outlined in the sections on Marcuse and Heidegger in this chapter. Commoner employs a Critical Theory of technology and believes in the possibility of its transformation. What that means is a rejection of the basis of the modern technocracy, and equally of what we consider today as modern democracy. This is the great challenge posed by the environmental lobby. The question is how the governing body at the United Nations would receive such a proposal, as it inevitably includes them on their list of necessary reforms to radically challenge such representative democracy for a participative one.

Critical Theory Meets Science and Technology Studies

The numerous successes of technology, as we have seen with Marcuse and Heidegger, have resulted in a modern world whose socio-political life has been shaped through technology. Accordingly, says Feenberg:

> The tools we use shape our lives in modern societies where technique has become all persuasive. In this situation means and ends cannot be separated. How we do things determines who and what we are. Technological development transforms what it is to be human. (1999, p.2)

Yet, as we have seen, despite seeing the way technology shapes us, Feenberg wants no part of either positivism or determinism. Their ends lie in a mutual misunderstanding of the possibilities of technology and democracy. Rather Feenberg uses the analogy of a participative democracy from the New Left to take a step towards revising democracy in modernity. His view aims at hitting the polemic somewhere between the romantic notions of the radicals and the dystopian ones of the modernists, like Weber, who have left us with the analogy of the "Iron-Cage" of bureaucracy and rationalism. The starting point, as we have seen with Heidegger is in an anti-deterministic and anti-positivistic stance on the question of technology. From this we can follow Feenberg's argument of a technology that is essentially *ambivalent* to its control; and can be summarized in the following two principles:

> 1. Conservation of hierarchy: social hierarchy can generally be preserved and reproduced as new technology is introduced. This principal explains the extraordinary continuity of power in advanced capitalist societies over the last several generations, made possible by technocratic strategies of modernization despite enormous technical changes.
> 2. Democratic Rationalization: new technology can also be used to undermine the existing social hierarchy or to force it to meet needs it has ignored. This principle explains the technical initiatives that often accompany the structural reforms pursued by union, environmental and other social movements. (1999, p. 76)

Using this model, Feenberg shows that democratic rationalizations have occurred throughout history and how these rationalizations still retain the possibility to create all out change within the system, while lesser ones are co-opted by the existing system and end up propagating the same hegemony. For technology *per se* is not what fights against change, but rather the technocratic hierarchy which fears losing their hard-won freedom from interference (1999, p. 76). Yet, Feenberg's argument of ambivalence must be understood in the generalized sense of technology. For the technical code within any artefact of technology, be it physical or legal, is so charged with social interests that we need to clarify that technology is essentially ambivalent, but not necessarily its particular incarnations.

Borrowing from work that has been done in cultural studies, research that has traditionally focused on the micro-politics of everyday life, Feenberg employs models from the social constructivists like Pinch and Bijker, Science and Technology specialists, like Langdon Winner, and what I call co-constructivists like Bruno Latour and Michel Callon to revisit the question of technology with a synthesis into the concept of democracy.[64] These philosophers inherently disagree with the idea of a deterministic technology, similarly to what Marcuse approached in *One-Dimensional Man*, and are clearly at odds with the positivistic stance. Thus the concept of a necessary linear scientific progress is replaced by one that assumes it is social actors pushing the paradigm from behind, rather than some all-powerful *a priori* force pulling it from above. He states that technical domination is related to social organization. The result is that:

> [The social constructivists] relate technical domination to social organization and argue that technology has no singular essence but is socially contingent and could therefore be reconstructed to play different roles in different social systems. (1999, p. 7)

[64] Tucker (2007) recently argued that the discipline of Science Studies which was developed in France and headed by Latour and Callon, relates to (and only to) the French political context. While I do not agree with this perspective for reasons outlined in this text, for those interested in following the discussion, please see her work.

At the same time, Feenberg refuses to limit the essence of technology to efficiency, as did Heidegger. Taking modern cybernetics—a model used in both computing and ecological studies—as his model, he shows how technology is much more multidimensional than that which was conceived in both Heidegger's (remember, Heidegger wrote during the immediate postwar) and Marcuse's (who wrote *One-Dimensional Man* in the 1960s) time:

> The contemporary political sensibility must be informed by the nuclear—now also the environmental—age, from which we learn the threat to survival contained in the very nature of our civilization. A society that can destroy life on earth by the careless application of fluorocarbon deodorant sprays is indeed beyond the pale of any rational calculation of survival chances. History is over in principle in the sense that the old conflicts and ambitions must give way to a radically new type of human adventure, or else the species will surely die. (Feenberg, 1999, p. 69)

Also, in contrast to Heidegger's macro approach, Feenberg sees the ontological split between technology and meaning as a terrain of struggle between actors, not as an *a priori* split. For as he states,

> Real change will come not when we run away from technology toward meaning, but when we recognize the nature of our subordinate position in the technical systems that enrol us, and begin to intervene in the design process in the defence of conditions of a meaningful life and a liveable environment. (1999, p. xiv)

Thus Feenberg follows Marcuse, rejecting both the rosy positivist and gloomy determinist views on technology and investigates the space of the philosophical reflection on social control of technological development. This is to say there is no one essence of technology, rather it is socially contingent. Once this aspect of contingency is widely recognized, Feenberg muses, the technical elites "will have to be more responsive to a democratically informed public." (1999, p. 8)

Like many other Science and Technology Studies (STS) academics, like Pinch, Bijker, and Latour, Feenberg insists on ending the idea of scientific thought as being universal thought. Clearly, scientific facts and artefacts share more than a similar etymology. They are, in fact, both created by man. Thus he refutes the seeming consensus and opens the black box of science to

begin his investigation into the sciences. To respond to the scientistic *a priori* rationale that we have seen with Marcuse, he looks at technology as socio-political and offers democratic rationalizations as a solution to what theorists have called the iron cage of rationalization and bureaucratization.

By using the constructivist approach he looks as closure of a scientific fact or technological artefact as merely an example of technical hegemony rather than a deterministic or necessary one. This non-deterministic view is all-important, as it counterbalances both the positivistic thought that we live in the best of all possible worlds, with the best science available and the dystopian determinist one from which "only a god can save us." Rather, it shows that we live in a world where powers co-opt and rally for position on any given fact or facet of power, and that this struggle is open for lower end actors.

Technology, perhaps that which is our most powerful world creator today, is certainly up for grabs in these volleys of power. By employing the constructivist perspective, Feenberg states:

> The choice between alternatives ultimately depends neither on technical nor economic efficiency but on the "fit" between the devices and the interests and beliefs of the various social groups that influence the design process. What singles out an artefact is its relationship to the social environment, not some intrinsic property. (1999, p. 79)

To better understand this, let us deviate for a moment to overview the proposal. Pinch and Bijker are the primogenitors of a conceptual method called the Social Shaping of Technology (SCOT) which examines the offspring of technological consensus—be it artefact or fact—through a symmetric examination of the factors throughout the "hot stage," or phase of production. According to them, "a developmental process of a technological artefact is described as an alternation of variation and selection. This results in a "multidirectional" model, in contrast with the linear models used explicitly in many innovation studies and implicitly in much history of technology" (1987, p. 28). SCOT places society as the prime mover, and works on the premise that all technology is relative to the social order from which it came from—or perhaps more accurately, was shaped by.

The strength of the program is its symmetric approach to the history of science which examines the plurality of social ties and variants, escaping the linear approach that can be found in many a historical retrospection, especially, for example, when examining the interpretative flexibility of technological artefacts. Thus, one of its main advantages is to show that no artefact is necessary; rather, each is the result of much discussion and infighting as stakeholders vie around opposing positions until eventually one or more give way and consensus is reached on the particular artefact. Also it helps show that there is no one determining factor of any one artefact, including technical principles like efficiency or economic benefit. However, on the negative side, while broadening the scope, it delimits the relation between technology and mankind into a one-way valve which goes from society to technology, thus reducing the multilateral negotiations inherent in the technology-society-modernity juncture, and missing some of the value-added concepts that this paper attributes to technology.

There is a second position that has been worked on by Bruno Latour, a study-partner of Feenberg during his years in California, which fills the gap more roundly. Called the Actor Network Theory (ANT), its strength is that it essentially accrues technological artefacts as the missing ingredient in our sociological soup.[65] The standpoint is one of material heterogeneity, meaning that artefacts and humans then co-construct one another, as opposed to the human-sided SCOT model. By radicalizing the former model's unidirectional mode, the ANT project blurs the lines between science and society into an indivisible continuum and incorporates into an ever complicating and growing web or network of *actants*—entities that impress and effect change within the system. The idea of technology "fighting back" —that which is missing in the SCOT program—has long ranging effects for those following a Critical Theory to technology.

It is clear to see why these approaches were absorbed by Feenberg as the position of these philosophers and sociologists is determinedly *not* determinist. It broadens the scope by initiating the whole conundrum of forces and elements that coincide in a historical context to influence of the problematic, particularly—but not exclusively—the rebounding effects of

[65] See Bruno Latour (1992) for a good overview.

technology on society. Under these perimeters facts and artefacts share more than an etymology; they share the same construction and network phases.[66]

Each fact and artefact is therefore an *a posteriori* hybrid, not an *a priori* response to a particular need or want; nothing is inevitable. From this we see that the constructivist position has very different implications for the humanistic study of technology that can be summarized in the following three points:

> 1) Technical design is not determined by a general criterion such as efficiency, but by a social process which differentiates technical alternatives according to a variety of case-specific criteria;
>
> 2) That social process is not about fulfilling "natural" human needs, but concern that cultural definition of needs and therefore of the problems to which technology is addressed;
>
> 3) Competing definitions reflect conflicting visions of modern society realized in different technical choices. (1999, p. 83-84)

What this means is that there are assumptions of social values in the case of any given fact at the moment of disputation. At the point of consensus or as Latour would say, as science's Janus face looks forward, a contest of interpretations takes place.

Feenberg, using the findings of the constructivists, explains how technologies tend to be the artefacts of dominant interests. Through an archaeological investigation one can expose the cultural and political codes therein:

> Technologies are selected by the dominant interests from among many possible configurations. Guiding the selection process are social codes established by the cultural and political struggles that define the horizon under which the technology will fall. Once introduced, technology offers a material validation of that cultural horizon.

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[66] This is the key finding of Latour in his landmark *We Have Never Been Modern*. Science's claim of a disinterested sphere of objective truth production is but a veil for a modern technocratic juggernaut that remains tightly and powerfully woven together. No technology or science is pure, thus the premise beyond modernity is a farce and Latour is able to conclude that we must not think we were every really truly modern—that we have never really been able to separate the divisions that science claims are necessary for a pure science.

> Apparently neutral technological rationality is enlisted in support of a hegemony through the bias it acquires in the process of technical development. The more technology society employs, the more significant is this support. The legitimating effectiveness of technology depends on unconsciousness of the cultural-political horizon under which it was designed. A Critical Theory of technology can uncover that horizon, demystify the illusion of technical necessity, and expose the relativity of the prevailing technical choices. (1999, p. 87)

Technology is necessarily political, and thus has significant social and hegemonic investment into it. Economy or efficiency, two commonly attributed factors to technology are also uncovered as false promises for they are both not necessary to the social consensus that takes place at the founding of any artefact, nor are they neutral, for they both favour a certain perception of the world that is amenable to certain groups and not to others. Thus, technology is not neutral and nor is efficiency an *a priori*, naturalized need.

Yet, the widespread blind acceptance of the technological model has been the portal through which western society has adopted its new power structure—the modern technocracy—which as Bourdieu adequately warns comes in the form of a "monopoly of scientific authority" (1975, p. 21). The creation of a science-based hegemony was built on the much mistaken notion that science is practiced by academic specialists only, who aim selflessly for the greater good from the get-go. The positivists' plan—which by definition the followers of developmental convergence engage in—for a social reconstruction illustrates as much then as it does now, that the science-based hierarchy fights not so much for *science* and its claim for "true" Truths as the right to rule, through socially-determined criteria.

Nonetheless, history is replete with examples of how science and its handmaiden, technology, have taken political leanings in particular to large, centralized forms of control. It's worthwhile here to briefly revisit Thomas P. Hughes, whose 1987 paper, "The Evolution of Large Technological Systems", investigates the point. Hughes broadens his concept of technological system to include 1) physical artefacts; 2) organizations which incorporate scientific components like theories and research; 3) legislation; and 4) natural resources (1987, p. 50). According to the

author, the strength of a system builder is the "ability to construct or to force unity from diversity, centralization in the face of pluralism, and coherence from chaos" (1987, p. 52).

In his work Hughes showed how Big-Science technology is necessarily centralized, requiring hierarchical managerial control for its proper operation. Subsequently, "Inventors, engineers, scientists, managers, owners, investors, financers, civil servants, and politicians often have vested interests in the growth and durability of a system" (1987, p. 77)[67]. He also showed how the larger the system the larger the problems of control.

Scientific institutions, under this symmetric analysis, can no longer be seen as disinterested truth-centered knowledge makers. Rather they are pragmatically-based institutions that only embody the values of technological rationalism as laid out by Max Weber—efficiency, frugality, orderliness, diligence, punctuality, and rationality in decision making liberated from tradition, custom, and group allegiances—when convenient.

Hughes' paper reveals that Big-Science technology is necessarily centralized, requiring hierarchical managerial control for its proper operation. His study exposes the technological shaping of society, the *reverse* of the SCOT program. For without the authoritarian social structure, he argues, the enormous plants aren't politically viable and cannot be operated safely or even be rationally considered. This is exactly how technology fights back. It is in a sense also system-building, autopoeitic, as it seeks to empower itself into the hegemony through technology. From Hughes work, we get the uneasy conclusion that centralized technical systems based on a scientific model have helped install and at the same time justify today's present technocracy.

Langdon Winner, a contemporary of Hughes also pursues this thread in his work, "Do Artefacts Have Politics?"[68] He questions the machines, structures and systems of modern material culture for the ways in which they can "embody specific forms of power and authority" (1999, p. 28). In his discussion, he forwards the idea that there are cases of "inherently political

[67] For more on this, please see Hughes (1987).
[68] For more on this essay, please turn to MacKenzie & Wajcman ([1986], 1999). Winner's text, "Do Artifacts Have Politics?" (pp 28-40), is considered by many a foundational text in this field.

technologies, man-made systems that appear to require, or to be strongly compatible with, particular kinds of political relationships" (1999, p. 30).

Winner's starting point are the low bridges of New York City developed by Robert Moses, the master builder of roads, parks and bridges in that city between 1920 and 1970, to disenable public transit—and the populations of the poor that relied on that system of transport—access to certain upper-scale areas of the city. Technological change, Winner concludes, "expresses a panoply of human motives, not the least of which is the desire of some to have dominion over others, even though it may require an occasional sacrifice of cost-cutting and some violence to the norm of getting more for less" (1999, p. 31).

Winner's examination of the vertically imposing technologies of modernity takes up back to the founding of Greenpeace. For as he argues, some technologies help create a "form of political life." Like Hughes, he examines the adoption of large scale infrastructure as belonging to this genre of technological politics, one which "some kinds of technology require their social environments to be structured in a particular way (1999, p. 33). He cites the example of nuclear power as fundamentally necessitating a techno-scientific military elite similar to the one that the environmental movement had fought against.

Feenberg looks at the result of this complex relationship and discusses how the struggles around new technologies result in a codification, which Feenberg calls the "technical code" and Latour calls "delegation"—that is a transfer of the moral weight of any command into a non-human delegate, a technology. The hegemony attempts to reinstall itself through every technology. The stakes are high. For once the hegemonic value system realizes certain elements, like the fact that neutrality doesn't exist and efficiency is a non-necessary, value-laden concept, there opens up a possibility for a different kind of technology that takes yet other non-necessary social elements into consideration. We have seen this with Commoner's position. The environmentalist's concept of prosperity was taken out of its standard model and invigorated with a concept of a more inclusive social and environmental wealth—to society and its environment over the long period, as opposed to the individual capitalist over the immediate one at the cost of the environment.

By undertaking Feenberg's Critical Theory which is based on this work in Science and Technology Studies, we end up in a position where nothing is fixed; technology can potentially serve a variety of interests equally through new formulations. This is the portal to showing how a very different modernity is possible, one which the radical environmentalists envisioned since the 1970s, where democracy is applied to technology, and the result is that technology serves not the technocracy, but the people and the non-human actors in the environment.

What this means for my question concerning sustainable development is that the actual artefact of the Brundtland Report is a non-necessary and socially configured and designed artefact. Was it to be about development? Or was it to be about the environment and a radical ecology as posited by the Commoner side of the debate? As we have seen, there was no other likelihood but for the result to end up on one of the two polar ends of this continuum. Politics would play out. The consensus that the Brundtland Report shows is the one I am questioning, for within its technical code we can see how the design of objects mirrors back the social order as the constructivists have so stated. The code inherent in the terming of sustainable development with those particular words, in the historical circumstances of the 1980s offers us an opportunity at decoding the beliefs of those who termed it and their ideology.

Domination and Resistance: Democracy and Agency

According to sociologist Barrington Moore,[69] even in the worst conditions of social oppression, subordinates still hold the possibility of challenging authority. Obviously, in regimes that are highly vertical and coercive, there is minimal room for subordinates to manoeuvre in comparison with the range of movement held by those in command. Yet, as every power relationship develops its own set of explicit and implicit rules and behaviours which are in continuous renegotiation, subordinates as well as authorities constantly try to push the limits in

[69] Moore began a life long friendship with Marcuse during the time they spent together in the war in Washington at the Office of Strategic Services (OSS). His work is influenced by Marcuse's. His most important book was *Social Origins of Dictatorship and Democracy*, which appeared in 1966, two years after *One-Dimensional Man* was published. The two would profoundly influence each others work; in his acknowledgements of his 1969, *An Essay on Liberation* Marcuse would formally thank Moore for his input.

order to obtain more privileges. Therefore, in order to determine the threshold between obedience and revolt, for Moore it remains necessary to understand power as a dialectical relationship that feeds itself from all of those who participate in it—even those that on the surface would seem powerless.[70] Although not theorizing on technology as such, his insights prove useful for our discussion.

In effect, Moore is describing what Feenberg calls "agency": the capacity for the individual to invoke change on a social level. In today's democracy the fundamental issue is the seeming swell in the difficulty of the individuals to attain this agency in the face of an increasingly technocratic universe. For the timeless question is: who and how should rule in a world radically complexified by science—the scientists, the self-made specialists of the technological sphere; or the people, who are often said to have no comprehension of the inner workings of this sphere? The environmental movement at its very foundation as we have seen with Ehrlich and Commoner remained divided over this exact question.

Ehrlich suggested that technocracy is a healthy response for the lack of a generalized expertise in technology in the public sphere. In the manner that the industrial revolution placed the social implication of the necessity of a division of labour, technological society divides its citizens into the knowing and the unknowing, leaving technical decisions in the hands of the experts, and other non-technical decisions in the hands of the non-technical. Yet it was precisely this technological society that spooked the public sphere in the 1960s, when early enthusiasm for nuclear energy and the space program turned to technophobia. Remember, the main thrust of the issue of technological society has been, as we have seen earlier in this chapter, not in technology itself, but in the technocratic and authoritarian direction thereof.

Historically, the idea of a bureaucratized technocratic order made sense, for it seemed to be essentially more efficient than a broad and empowered lay force. Today, that emphasis continues to exist in the public sphere; yet, it is now challenged by proponents like Feenberg, Latour, Pinch and Bijker as we have seen in the previous section, particularly in Feenberg's

[70] To understand the whole of his argument see Part One of Barrington Moore (1978), pages 3-116.

sense of "users"—a lay public that is actively interested and using technology. Feenberg's work with this concept also has ties with the work of another tangent, called the Constructive Technical Assessment (CTA) whose explicit goal is "developing technologies with desired positive impacts and with few (or at least manageable) negative impacts." (Rip, Misa & Schot, 1996, p. 3)[71]

All of these work in the modern science and technology studies and other cultural studies which have acknowledged that the public is affected to a greater degree by technology than any other political force and therefore technology should be studied as politics. As Rip, Misa and Schot state:

> Whatever their ultimate promises, technologies confront major resistance and acceptance problems when and because their promoters fail to consider impacts and the impacted communities lack access to the pertinent decision making processes. Citizen protests and regulatory challenges that come after-the-fact are symptomatic of this exclusion. What is missing are mechanisms and processes to facilitate societal learning about how to co-produce technology and its impacts, and how to achieve desirable outcomes. (1996, p. 3)

Even the technocracy's lip service that it pays to the necessity of democracy shows the inherent tension over this point even amongst those at the technocratic level. As such, technocratic leaders have gotten to the point of agreeing that these individuals, captured in a network of technically mediated activities, should have some agency over this web. The case in point we are studying, that of the World Commission on Environment and Development, is but one of many examples of this happening at a macro level.

Yet these are reactions to micro level responses to the consequences of technology. These counter-cultural actions coming from below—and within—the system are what Feenberg calls "democratic rationalizations:"

> In the new technical politics, the social groups so constituted turn back reflexively on the framework that defines and organizes them: "we," as patients, users of a

[71] This comes from Rip, Misa, & Schot (1996).

> domestic computer system, participants in a division of labour, neighbours of a polluting plant, are the actors. It is this sort of agency that holds the promise of a democratization of technology. Technical politics foreshadows a world in which technology, as a kind of social "legislation" affective every aspect of our lives, will emerge from these new types of public consultation. (1999, p. 105)

Feenberg and those working in Constructive Technical Assessment[72] consider that this new kind of public consultation exists in a separate domain from that of standard formal politics. For today's political structures are built on a foundation that has been charged with hundreds of years of inherently authoritarian rule. They must be changed from below for and by the citizens. "Greater reflexivity would result in more difficulty in developing hegemonistic technological systems—more fundamental pluralism" (Wynne, 1995, p. 29).[73]

Herein lies a twist. For from this perspective the hegemony is threatened not from an outside force, but rather its fundamental structure. This is where Feenberg differs from Marcuse who projected that revolution would come from without. For Feenberg, the key to revolution comes from within the active users of the system, from the democratic rationalizations which "signify user interventions that challenge undemocratic power structures rooted in modern technology" (1999, p. 108). These actions offer the possibility of various futures and in so doing

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[72] There are plenty of examples that the academics working in CTA have been working on including such technologies as the oft cited case of wind power in Scandinavia. For a further discussion on the idea of user-based interventions from integrated users, please turn to Toeffler, Alvin and Heidi (2006). The authors' three-fold theory posits 1) the world is going through a historic change in the way wealth is made; 2) in an inter-reaction of these changes we are changing our relationships to certain fundamentals of society—especially those involving time, space and knowledge. In particular, today's accelerating changes are de-synchronizing more and more parts of the economy and challenging our definitions of truth and science; and 3) we've seen that the money economy is only part of a much larger wealth system and is dependent on largely unnoticed infusions of value from a massive, worldwide *non-money* economy based on what we have called presuming. This concluding point dovetails with Feenberg's democratic rationalizations. In Toffler's words, "prosumers,"—those that both produce and consume below the radar of the formal economy—will be the heart of the "Third Wave," or knowledge economy, the economy of the 21st century.

[73] Wynne (1995), as Feenberg, argues that technical assessment suffered in the past from the *a priori* assumption of unilinear flow from "objective" scientific discovery to "necessary" social adjustment. These stifling conceptual, methodological and political confines technical assessment would be improved by regarding public controversies about technology as rich, engaged and grounded social processes of assessing technologies.

represent a wide range of modern concerns including human rights, health, the environment and the quality of work.

Rather than fight for revolution's sake, Feenberg's democratic rationalizations search for modernizing and actualizing today's political structures to bring active horizontal democracy to today's vertically exploding technological sphere. The price of ridding ourselves of our antiquated legislative system is the technocracy now "entrenched" in power, and perhaps some of their entrenching technologies.[74] Its basic premise is that were technology to free itself from its narrow outlines then we could expect much more from it—technology for the people, by the people. For "technology is not out of control, but the way our society handles its technology can and should be improved" (Rip et al, 2003, p. 7).

The premise of these democratic rationalizations goes back to what Commoner suggested—that the people be empowered. Yet this goes against the formative structure of today's representative democracy. To get around this formidable foe, lower end actors often employ a communications war. Feenberg states:

> Key struggles are often decided in the communicative realm by making private information public, revealing secrets, introducing controversy into supposedly neutral scientific fields, and so on. Once corporations and government agencies are forced to operate under public scrutiny, it becomes much more difficult to support dangerous technologies such as nuclear power. (1999, p. 120)

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[74] Ulrik Jørgensen and Peter Karnøe make the argument in the example of the Danish energy experience. They discuss how the public's 1973 fight against power plants instigated a grass root energy movement that ended the possibility of nuclear power—a power source that has required a hierarchical technocracy to run it—and replaced that with a renewable energy program. This in turn created an alternative energy movement which through local innovation evolved into the development of the modern wind turbine and the wind energy industry in Denmark. They state that "The bottom-up development strategy had its strength in combining a political vision with practical experience from experiments with small and medium sized turbines." Their findings also show that:
The development of the modern Danish wind technology breaks some well established propositions about the development of energy production technology. First, that the most efficient trajectory for power production is to centralize in ever larger units. Second, that scientific R&D is the best means of developing new technology. Third, that the utility companies and private industry are the best organizational frame of development. Rather, Danish wind-turbine technology has been a surprising combination of small units, new industrial expertise, low costs and high performance. (1996)
For more on this please see Jørgensen & Karnøe (1996).

Certainly technological expertise is necessary to understand the scientific complexity of any problem. However, this has traditionally led to problems of secrecy which have subsequently led to problems of trust and confidence in the scientific hierarchy. "Technocracy is thus not the boon to technical advance it claims to be, but on the contrary is often guilty of obstructing the innovations needed to solve problems that it does its best to hide" (1999, p. 122).

> By opening up information control strategies, the environmentalists have been able to expose contradictions within the technocracy and show how biased the game is. Innovative dialogue and participatory design promise a fundamental solution to the conflict between lay and expert. Just such a solution was prefigured in the May Events as members of professions and bureaucracies appealed to the people to work with them for deep democratization. In the long run, a technology continually revised and advanced through innovative dialogue would incorporate different values reflecting a broader range of interests and a more democratic vision. Undoubtedly, there are many obstacles to this outcome, but it is pointless to object *a priori* that experts are so bound to the alien project of "Western *episteme,*" they can only distort the will of the laity. Such essentialist readings of the situation create an insoluble dilemma where there is an abundance of evidence for the possibility of collaboration and compromise. (Feenberg, 1999, p. 125)

This is the way of technology for as it employs or affects actors in its network, these actors inevitably fight back and respond with different connotative reactions, not necessarily foreseen by its technocratic codifiers. The nub of the argument comes back to Moore's point that:

> Human beings still represent the unrealized potential of their technologies. Their tactical resistances to establish designs can impose new values on technical institutions and create a new type of modern society. Instead of a technocracy in which technology everywhere trumps human communication, we may yet build a democratic society in which technical advance serves communicative advance. (Feenberg, 1999, p. 128)

From Feenberg's work on the problem, we understand technocracy as "a wide-ranging administrative system that is *legitimated* by reference to scientific expertise rather than tradition, law, or the will of the people" (1999, p. 4). Furthermore, we see that democratic rationalizations and user interventions as the stuff for which technology is bound to change. All is fine up to here. But if this is so, then the first clue to opening the black box of sustainable development its essential hypocrisy—while pretending to be from the bottom (the concept of sustainable comes from the concept of environmental—remember the WCED, stands for Environment and Development), its implementation was actually placed by the members of the technocracy, that of the United Nations. The subsequent cross over, from the substantive concept of environment to the adjective "sustainable," belies the loss of this crucial concept in the formal aspect of its co-option. For the United Nations' co-option comes from the top and excludes the democratic rationalizations that Feenberg fights for. We will examine the details of this in the fourth chapter of the thesis.

Critiques on Feenberg

There have been several critiques on Feenberg's work. One of the most interesting for my discussion comes from Tyler Veak[75] who challenges Feenberg on two of his proposals that I have appropriated in this discussion from an anti-capitalist perspective. His argument hinges on a pair of disagreements with Feenberg: the first being the proposal of democratic rationalizations from the bottom end users as an example of liberation. Veak states: "In focusing on the "micro-politics" of local struggles over technological design, [Feenberg] largely ignores the broader context of the global market system, and how the "logic" of the market always seems to prevail;" and the second one is Feenberg's claim that environmentalism will lead the charge in the political transformation of modernity. Veak argues that "Grassroots resistances typically become either overcome by the context of global-fluid capital, or co-opted by the bureaucratic machine (where environmentalism becomes mainstreamed)" (2000, p. 238). Both of these arguments are linked

[75] This discussion comes from the 11th Biennial Conference of the Society for Philosophy and Technology, San Jose, California, 1999, and subsequently published in *Science, Technology and Human Values*, Spring 2000, p. 238-242.

and important in the discussion of the environmental movement's eventual co-option by the scientific hegemony in the United Nations for obvious reasons. Let us examine Veak's work and then visit Feenberg's response to see how they hold up.

Veak's discussion is born out of Feenberg's acknowledgement that "Technological design must be freed from the profit system" (1999, p. 57) and his description of "democratic rationalizations" such as the struggle over the Internet, and the AIDS activists who have successfully reformulated the drug approval process in the USA. But according to Veak, these examples are pithy when referenced to the global picture of a juggernaut of internet "colonization" by market forces such as Microsoft and other multi-nationals. He states "The Internet is still in its infancy, but it is rapidly gaining technological momentum (to use Thomas P. Hughes term), and every step taken narrows the playing field, in terms of which actors will have a stake in shaping its future" (2000).

Furthermore, Veak considers the internet a poor example of participative democracy considering the price of membership and the skills involved to "steer" it to counter hegemonic ends. The AIDS case is similarly discredited as a "local" and partial win. How can these minor victories painted as local affect the greater and growing juggernaut of technological society?

Veak's argument slides back into an essential view of the state of things. Basing himself on Thomas P. Hughes' history of the electric utility, he states that "it appears that in the long run the logic of the market does seem to prevail." Certainly electrical grids now reach to all corners of the globe and because of it "we find ourselves more deeply embedded in a system in which we have no control over and no way out of—that is, short of dropping out completely." This is to say that according to Veak, there are only three ways of operating: determinism as we have seen with Heidegger, positivism, or "going back to the caves" to avoid technology's penetrating reach. Furthermore Veak's argument demands that critique be refocused from technology and back onto the market system of the present capitalist economy. For the problems of modernity are given a band-aid solution under the capitalist system, in reality they are being moved out of sight, and consequently out of mind—for example, the creation of tariff free Export Zones throughout the

Third World, and the North American Free Trade Agreement's (NAFTA) opening up the southern border so that multinational corporations can freely shop for the best place to exploit labour.

What Veak is really proposing is going back to a macro-level deterministic point of view. The argument, as we have seen with Heidegger has a long, drawn out history. While I cannot "solve" this issue here, I will call upon Philip Brey, also a theorist of technology, for his discussion on the matter:

> The problem of micro and macro remains one of the great unsolved problems in social science. In spite of all the attention this problem has generated, there is still no recipe, no method, and few inspiring exemplars on how to connect macro-level and micro level analyses. (2003, pp. 62-63)

The dilemma with incommensurability of these approaches filters down to two simple schools of thought. While the macro level approach suits a top-down hierarchy that goes from the abstract to the concrete, the latter focuses on the empirical philosophic project, one that constructs reality from the bottom-up, with general truths.

I am basing my work with the micro approach taken by cultural historians such as Moore who have shown how the "little guy" (or "gal") of history has been able to employ agency despite the macro systems of domination. There has been a recent explosion of this kind of work from which to pull sources. For example, the rash of examples that have taken place amongst the school of Constructive Technological Assessment makes a strong argument.[76]

A macro theorist like Veak, would then question if these micro cases do in fact affect change on the system itself. The work that has recently taken place on the micro level is affecting the technocracy of today. We have already seen how CTA is making inroads at the municipal and national levels—the Danish experience in wind turbine energy is a case in point. Whether these seemingly isolated examples in exceptional societies show that beyond a shadow of a doubt that the micro can effect change on the macro level, can be argued simply by looking at the case at hand. The inherent tensions within the issue of sustainable development enough to force the United Nations General Assembly to convene and commission Harlem Gro Brundtland to try to

[76] Please turn to Rip, Misa & Schot (1996).

put these two on equal footing is a case in point. Surely we can take that as a sign of the power of the micro on the might of the macro.

As Veak states, technical democratizations are, "detrimental if those particular technologies are part of a larger context that is increasing the disparity between the haves and the have nots." Certainly this is true if the democratizations lay fixed or closed, but then this sounds like we are returning to the deterministic view of Heidegger, one that we have spent the entire chapter trying to get away from. For to state all co-option is loss is an essentialist position.

Feenberg contends:

> How can we accept Veak's pro forma assurances that he is in favour of local reforms when he seems so enthusiastic about condemning them for masking global problems? (2000)

In fact, herein lies the problem: while Veak goes back to the age-old discussion of the political economy, Feenberg contends:

> ... a great many fundamental questions of civilization cut across the distinction between economic regimes. Feminists and race theorists have made the point that equality is always an issue. Abolishing discrimination under capitalism will not abolish economic inequality, but it is just as true that a socialist reform of the economy can leave discrimination intact. Reforms dismissed as trivial distractions by some dogmatic revolutionaries have made a difference. And that process is far from over. The civil rights movement, women's movements, movements of the disabled, environmental movements continue to have impacts one would be foolish to discount. (2000)

Veak's two arguments then lie on the same deterministic parallel. And Feenberg, and I for that matter, believe that when technological advance can become deeply democratic in particular when it embodies the values of participative democracy as opposed to authoritarian verticality. When it achieves this then there is something to celebrate. Co-option, under this lens is not the end, but the means to an ongoing social transformation—the means and ends are

separate. The danger is not in the process itself; rather, it is in complete "closure," in the social-constructivist meaning of the word that this particular co-option is.

This is precisely the point at which my examination of the conflict in sustainable development is at—an early phase of co-option. History is full of examples that show that without more pressure from below in the form of democratic rationalizations, they will likely—but not necessarily—stay here or slowly slide towards the old style of unsustainable development practices from which it sought to improve. However, as Marcuse and Feenberg have gone through great lengths to show, the politics of technology is far from written in stone; agency—and therefore, sustainability in the Commoner sense of the term—is *possible*.

Chapter Conclusions and Questions

What can we take from this section that has gone from showing the roots of the technology debate from Heidegger's dystopian determinism through Marcuse's aesthetics and potentiality, to Feenberg's optimistic Critical Theory of technology? The chapter leads to a starting point on a critical analysis of the today's technocracy. For as Feenberg's states:

> Technology is power in modern societies, a greater power in many domains than the political system itself. The masters of technical systems, corporate and military leaders, physicians and engineers, have far more control over patterns of urban growth, the design of dwellings and transportation systems, the selection of innovations, our experience as employees, patients, and consumers, than all the electoral institutions put together. (1999, p. 131)

The way to engage in such a discussion is through the anti-determinist and non-positivistic stance followed by the Critical Theorists. My contribution to the discussion begins taking these ideas as a stepping stone, and commences at the point where Feenberg leaves off. In particular, I will focus on the environmental movement's work in creating a major upheaval in today's society. We need no more than to look at the Canadian situation where pollsters repeatedly posit the environmental situation as the number one concern of taxpayers in the country, and consequently it is the number one issue for the upcoming elections. However, before

we break out the champagne, it is necessary to look at where the dialogue of the environmental movement is taking us. As we have seen, not all environmental discourses are alike. By investigating which one has been adopted by the United Nations and exported throughout the globe via their supranational programs, we can see if we are moving towards a new, participative democracy, or are becoming even more firmly entrenched in the old technocratic ways.

This thesis is based on bringing a micro analysis to the macro theory by examining not the micro history of the "oppressed" as is usual in the case of Critical Theory and Sub-Altern Theorists and micro-historians, who generally use this kind of analytic tool, but rather, I am applying the micro analysis to the hegemonic forces who collaborated to create the "mandate for the future" that we know as the Brundtland Report. To figure out the answer to this all-important question, I have focused on a crucial moment of the mainstreaming of the environmental movement—its co-option by the United Nations in their landmark 1987 Brundtland Report. This is the first moment that the movement was able to move beyond its boundaries as a reactionary movement, and become part of the establishment. How and what aspects of it made the transfer are all important to the future of the environment and democracy.

To show the range of the environmental discussion, we have looked back to recover Feenberg's discussion of it in *Questioning Technology*. The environmental movement, as Feenberg shows, exists in the philosophic space between Paul Ehrlich and Barry Commoner. The two positions result as a symbol of democracy. For the former suggests a continuation of the present schema, with a rhetoric of representative democracy, and the latter, a participative one. This is to say at the radical end of the environmental debate was a push for participative or what some call deep democracy. The two discourses are not prone to synthesis. Thus clearly one or the other side could have been co-opted—but not both.

The environmental movement then did show that there are possibilities for a different power relationship in the social sphere, one that is more in tune with our surroundings. Feenberg furthers this discussion to show what technology is and how it works in a modern democratic world. My question concerning sustainable development, then, is a simple one which brings these two elements into juxtaposition: which of the models of the environmental movement did the

United Nations employ? And its corollary: what does that mean for the environment and for democracy for humanity in the advanced stages of modernity?

This thesis, *The Question Concerning Sustainable Development*, is based on understanding this significant and oft overlooked aspect of the Brundtland Report. For the radical end of the environmental movement was as much about democracy as it was about the environment, while on the conservative end it represents the opposite. Therefore the manner in which it was co-opted is not only important in terms of the environment, but also in terms of our agency in this advanced world of technology—that is to say how we rule and are ruled.

CHAPTER 2. GREENPEACE, TECHNOLOGY, AND THE STRUGGLE FOR DEMOCRACY

Introduction: The Birth of Greenpeace

On September 15, 1971, the *Phyllis Cormack*, a 30-year-old, 80-foot long halibut fishing boat renamed *Greenpeace* set off to great media and local fanfare to the distant Aleutian Archipelago, situated off of the western coast of Alaska. Aboard was a motley crew of twelve sailors made up of biologists, writers, photographers, and Quakers, most of whom had never set foot in a boat before. They had taken upon themselves a dangerous mission: to travel 3,800 kilometres over rough sea to "bear witness" the test explosion by the U.S. Army of a five-megaton atomic bomb—an explosion which would be 240 times the magnitude of the one that was dropped over Hiroshima—off of the little-known island of Amchitka. But more than its actual protest versus what the Atomic Energy Commission (AEC) and the military complex of the United States of America (US) had codenamed the "Cannikin" test, the launch of this aged vessel can be seen as the no-turning back-point of the environmental movement in the techno-scientific arena. This chapter argues that it is the site of an important, subtle, and oft-forgotten shift in environmental politics and philosophy from a purely *pro-environmental* to a *pro-democracy/anti-technocracy* stance, one that continues to mark the basis of its protest and construction of the environmental platform.

Yet, to state that the environmental movement was born with the founding of Greenpeace in Vancouver's West End would be a huge and impertinent oversimplification. The movement has been the scene of a complex and dynamic history of environmental consciousness throughout the planet over time.[77] But despite the longevity of its history, the birth of *Greenpeace* has had a crucial significance for those interested in the sustainability debate. For more than any other

[77] Some would argue that Western environmental philosophy dates to before the pre-Socratics; modernists date it to the 1954 nuclear disaster that caused the 23 man crew of the Japanese fishing vessel Lucky Dragon to die from the radioactive fallout from a U.S. Army bomb test at Bikini Atoll. Certainly the movement got a huge push by the 1962 the publication of the book *Silent Spring* by Rachel Carson. This powerful and persuasive text drew attention to the impact of chemicals on the natural environment sparking more than a half century of environmental fighting with transnational corporations.

"event" (and I state this in the sense of Foucault's intention)[78] prior to the moment in time and place of its founding, the Greenpeace Amchitka mission offers a well-documented case of the explosion of what the Bob Hunter, one of the founding members of Greenpeace, named the "Mind Bomb"[79]—a term that referred to reaching the public consciousness through dramatic, camera-ready opposition to environmental crimes through the manipulation of the technology of a modern, graphic and instantaneous mass-media.

The jolting visual juxtapositions that the organization has used in their numerous struggles against technocracy—the ramshackle *Phyllis Cormack* versus the U.S. Army, the diminutive Greenpeace zodiacs racing in front of the nuclear warship HMS Eisenhower in their recent "Nuclear-Free Seas" campaign, their "Oil Fuels War" protest at the Esso headquarters in Leatherhead Surrey—have been able to not only awaken the generally apathetic public's collective consciousness to the undemocratic ways technological society but also to rouse the public into action. The archives of these early years expose the raw depth and breadth of the philosophical projection of the environmental Mind Bomb at its outset. Moreover, these archives chronicle the growing of the seeds of the philosophy that drove the movement to create its own, counterintuitive explosion of mass consciousness that revealed the asymmetry of knowledge and power relations within the modern technological society.

Yet, let it be clear that I am not investigating Greenpeace as an institution, nor as it is today[80]. By limiting my investigation to these rigid boarders I would lose what Nietzsche and his follower, Foucault, have called the "genealogy"[81] of the moment. The event of the founding of Greenpeace thus holds much insight into the base of the environmental movement and shows what I consider an important hegemonic misunderstanding which threatens to reduce the movement to only a partial or limited significance of its potential in the particular case of the

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[78] The sense of Foucault's "event" offers an interesting perspective for the social scientist examining the tangled relationship between knowledge and power. Please turn to Foucault's (2000) "Truth and Power" found in *Power: Essential Works of Foucault* for more information.

[79] For more on this, see Hunter (1971).

[80] There is a long list of qualified authors with fascinating stories on the group. Some of the must-reads that I have used in my research include (in chronological order) Karl and Dona Sturmanis (1978), Hunter (1979), Brown (1989), Bohlin (2001), and Weyler (2004).

[81] For more on this, please go to the source in Nietzsche (1887).

United Nation's (UN) World Commission on Environment and Development (WCED). For, as we will shortly see, the environmental movement as expressed at the outset of Greenpeace was not really about the environment. Rather it promoted a radical and pro-democratic solution to a wholly undemocratic technocracy.

Thus, by focussing on the point that the voice of Greenpeace was focussed not only on the environment, but also towards technology—and its subsequent technocracy—which had developed into a system of fundamental undemocracy, we can see the continued trend in its work, from the protests against the AEC to its modern day plight against the multinationals behind Genetically Modified Organisms (GMOs), the oil-fuelled war in Iraq and other fights. Although often slighted by hegemonic institutions as technophobic, the Greenpeace standpoint is nothing of the sort. For as we will shortly see, from its inception to the present, Greenpeace has continued to use, indeed manipulate modern technologies—in particular, but not exclusively, the media—against the ruling technocracy. Furthermore, the group has never been against science—in fact, several of its founding members were PhDs, and the group has based many of their arguments on scientific principals. This chapter seeks to expose this particularity and argue that rather than being technophobic or essentially environmental, Greenpeace was actually pro-technology and fought for the democratization of science, a science-for-the-people, from its outset.

For Greenpeace, the testing of atomic arms in the deep sea off an uninhibited Alaskan island by the most powerful modern "democracy" to ever rule on the planet was as great a symbol as any to show the postwar technocratic threat to the very concept of democracy. And the modern David-and-Goliath symbol that sailed off in the form of that old fishing boat to "bear witness" to the largest atomic detonation the earth had ever experienced was exactly the Mind Bomb to trigger this change of perspective and philosophy.

Just as Greenpeace's scope was far beyond the reaches of the environment, so were its ideals beyond the limitations of the national. This response, like many that would follow—we have to look no further than the World Trade Organization (WTO) meetings since Seattle in November 1999—crossed borders and frontiers both literally and figuratively. And thus in many ways the

movement was ahead of its times as one that defined locality and history as necessary in a moment in time when we were thought to be at the "end of history" (Fukuyama, 1992) and likewise on the cusp of the terminus of geography (Baumann 1998, Virilio 1997). Yet while going back to an old, seemingly outmoded world view, they were able to radicalize a new means of re-understanding a new form of politicking, a vanguard philosophy of interconnectedness—one that fits clearly into the Critical Theory debate, putting all *within* society, including the protestors.[82]

As Greenpeace is not the first step to ecological environmentalism and its attack on technocracy, neither is it perfect, nor is it its last word. The institution is a complex, messy, human, and flawed construct that is part of a much larger phenomenon which this thesis aims at understanding.[83] That is, of course, the concept of sustainable development and its roots in technological society. The environmental approach taken on by the early crusaders in Vancouver reveals the key issues of technology and democracy in the discussion of sustainability and goes a long way to understanding development. The purpose of this chapter then is to situate the former so that we can understand its relationship to the latter in the following chapter, and then understand their positioning in the controversial phrase "sustainable development," this thesis' final chapter.

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[82] The idea of the protestors being part of society, which ties into the sense of Feenberg's user-based interventions that I covered in the previous chapter, is explored by Ford (2003).

[83] Because of the particular angle I am pursuing—the environmental movement as a counter-technocracy/ pro-democracy camp—I will not be investigating the critiques that have been raised against Greenpeace as an organization. There have been many, including several internal battles that show the complexity of the vision emanating from the environmental movement. Two famous attacks (although there have been plenty more) have come from Greenpeace's own founders: Ben Metcalfe, described his colleagues at the time of their Amchitka protest as "an absurd, pathetic, little group" (cited in Dale, 1996, p. 15); and more recently Patrick Moore, also a founding member, defected stating irreconcilable differences. For an early look at critiques towards Greenpeace, please see James Eayrs (1973).

2.1 Technocracy and the Ecological Revolt

"I'm not a Red, I'm a Green"

—Rod Marining,

Founding Member of Greenpeace

Clearly the rapid evolution of Greenpeace happened within a broader historical and social context. It developed as a direct response to both local and international events and movements. In its immediate background was the particular failure of the United States (US) in Vietnam—to be sure, roughly two-thirds of its founding members were draft dodgers and war objectors who had left their native country. By the time that the first notice of the Amchitka bomb was sounded in 1969, the Vietcong's powerful anti-American Tet offensive had begun to show that the balance of power in the Asian theatre was changing. This had had a hugely erosive effect on the power of the U.S. administration within its political borders. Also, the concept of the war itself, sold as a "technical" problem—in the sense Marcuse discussed in the former chapter—with specific "technical" solutions, was being brought into question as reports of the concrete actions—Napalm bombs, Agent Orange, and the "Rolling Thunder" campaign, to name a few—perpetrated by the U.S. garrison and exposed by powerful war images broadcast by the media were becoming more unacceptable combative "techniques" to the public at large.

Nineteen-sixty-eight had also been a boomer year south of the Canadian border for numerous other reasons including the assassinations of the would-be presidential candidate Robert F. Kennedy and human-rights activist, Martin Luther King Jr., the riotous National Convention of the Democrats in Chicago, and the election with the barest of majorities of Republican Richard Nixon to the presidency of the United States. All these stood in stark contrast with the Apollo 8 photograph series of the same year. Named the "Earthrise," the startling group of images of the Earth "rising" from the perspective of the moon had crystallized in the collective memory of mankind. The juxtaposition of our rich and colourful biosphere from the perspective of a dry, lifeless moon seemed to enhance the fragility and miraculous unity of a little marble of life floating alone in a seemingly dead universe (Gore, 2006, pp. 12-15).

Yet the macro image of unity taken from outer space had little to do with the realities taking place on the planet at a micro scale. The Cold War had divided the planet's loyalties and major military conflicts were raging throughout—Vietnam, Guatemala, El Salvador, and Czechoslovakia to name but a few—and where armed conflicts were not being fought, the students and sympathizers were up in arms clashing head-on with authoritarian governmental forces—Paris and Mexico City being two prime—but not unique—examples. Economically speaking, there was also a growing disparity between rich and poor both on national levels and internationally. And since World War II, a growing environmental crisis had been festering which had pitted conscientious authors like Rachel Carson into an open conflict against the Chief Executive Officers (CEOs) of the transnational companies. Thus when the US government announced that they were going to continue with a series of Amchitka blasts, the first, a 1.2-megaton bomb codenamed "Milrow" set for the end of September 1969, to be followed in 1971 by the "Cannikin," a controlled explosion that the AEC stated would be four times greater than its predecessor, the greatest magnitude that the earth had ever experienced (effectively it would be some 240 times more powerful than the explosion that razed Hiroshima). The announcement set a tinderbox of reaction north of the border.

Perhaps it was local newspaperman, Bob Hunter's horrific image that helped create the hype.[84] His September 24 article in the *Vancouver Sun* typifies the kind of apocalyptic description that he and other local reporters used at the time:

> "Beginning at midnight tonight, the United States will begin to play a game of Russian roulette with a nuclear pistol pressed against the head of the world. As of midnight, a blockade will be thrown around remote Amchitka Island near the tail end of the Aleutians. Sometime between tomorrow and October 15, a 1.2 megaton atomic bomb will be triggered at the bottom of a 4,000-foot hole on the island.

[84] Years later magazine columnist Alan Fotheringham would say that Greenpeace actually owed its existence not so much to Bob Hunter's writing, but to *The Vancouver Sun* for publishing his work. In an interview on the subject, Hunter agreed that, "there is some truth to that" (cited in Dale, 1996, p.21).

> No one knows what the consequences will be, but scientists in Canada, the U.S., Japan and Hawaii have warned that there is a distinct danger that the test might set in motion earthquakes and tidal waves which could sweep from one end of the Pacific to the other... By setting off its underground nuclear test in the Aleutians—one of the most earthquake prone areas in the world—the U.S. Atomic Energy Commission is taking a chance on triggering a chain reaction of earthquakes and tidal waves which could slam the lips of the Pacific Rim like a series of karate chops."[85]

There was some reason to write such a melodramatic text. Amchitka is situated in one of the most geologically unstable areas on earth. Only five years earlier, the region had been the epicentre of a massive quake, registering 8.3 on the Richter scale that had cut a 800-kilometre wide swathe of destruction across Alaska, killing 115 people and setting off a series of tsunamis that crashed along the Pacific shores of Oregon, California, Kamchatka, Japan and Hawaii. Over the next 18 months after the quake 10,000 aftershocks shook the region (Brown and May, 1991, p. 7).

In response to the news, the newly formed Vancouver chapter of the Sierra Club spearheaded a rally of 7,000 protestors made up of roughly 6,000 Canadians and 1,000 U.S. citizens all of whom joined forces beneath the Peace Arch to close the Douglas Border amidst a rally of anti-establishment jeers and slogans. With a combined force of hippies, students, Maoists, Yippies, Trotskyites and otherwise concerned citizens, this anti-governmental display stopped traffic on the longest undefended border on the planet. This historic blockade marked the first time the border had been closed since the war of 1812. It would be the first show of the movement's international vision and its capacity to organize influential and meaningful protests. Furthermore, it was the first time that the group would protest not solely against an action—the

[85] This, like all the quotes in this text taken from the Vancouver Sun and the Georgia Straight was found in the newspaper archives from the Vancouver Public Library.

killing of whales, seals or the forests—but against a technocracy. The move to picket against the AEC would be but the first of such attacks.[86]

Similarly, the content of the protestors' move was a strike against what until then had been called the "Weber thesis," the state's monopoly of the legitimate use of physical force, in this case in Vietnam as well as locally in the Aleutian archipelago. The general arbitrariness of a social structure that enabled the detonation of such a huge blast seemed radically unbalanced and anti-democratic to those at the rally. The activists realized like many of the New Left in the 1960s that non-action was part of the problem and that "non-violent direct actions" could lead to democratic solutions. And perhaps inspired by early environmentalist David Thoreau, who was imprisoned in his refusal to pay taxes that went to the 1846 US invasion of Mexico, they followed his milestone text entitled *On Civil Disobedience* over a century earlier, which questioned the democratic citizen's role when faced with a technocracy:

> Must the citizen ever for a moment, or in the least degree, resign his conscience to the legislator? Why has every man a conscience then? I think that we should be men first, and subjects afterward. It is not desirable to cultivate a respect for the law, so much as for the right. The only obligation which I have a right to assume is to do at any time what I think right.[87]

Their protest opposed the accepted wisdom, "that society is fate, that the individual must adapt to survive," for they posited that "society be adapted to the individuals" (Feenberg, 1999, p. 36). It held what Feenberg describes as the defining characteristic of a revolution:

> ... not that it is stronger than the state, but it abruptly calls the existing society into question in the minds of millions and effectively presses them into action. A revolution is an attempt by these millions to influence the resolution of a profound social crisis

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[86] The work of Greenpeace and other Non-Governmental Organizations (NGOs) versus technocratic decision-making stretches all the way through to today's lobbying versus the anti-democratic stance of the transnationals and national government agencies who are promoting Genetically Modified Organisms (GMOs) through their political network. For more on this in reference to the case of the Canadian Biotechnology Advisory Committee, please see Magnan (2006).

[87] For more on the text, please see Thoreau (1849). Note that there is sometimes some confusion with finding the text as it was first published with the name *Resistance to Civil Government.*

by violent or illegal means, re-establishing the community on new bases.[88] (1999, p. 42)

One protestor at the Douglas crossing defined the asymmetric power relations of the modern technocracy he was protesting against more succinctly when he carried a banner that summed it up in three simple words. "America is Death!"[89]

The revolution over Amchitka, like many protests before it, could not be labelled and discarded as many of its predecessors as Marxist- or student- driven as was typical in previous revolts monitored by the U.S. and Canadian media. For of the many reasons (including the fact that it was not either of these) that it was not dismissed as such, rather importantly, it was not in the interest of the Canadian media to do so, since the powerful local press actually supported the demonstrations—Bob Hunter, whose columns in the Vancouver Sun were hugely supportive of the movement, would become following the rally one of the founding members of Greenpeace.[90] And so while the capitalist-communist dialectic had traditionally been assumed to rule these kinds of demonstrations since the turn of the century, this remonstration had broken the boundaries of a class struggle as we will shortly see. For it would unify not only workers or students, rather it gathered people from all walks of life, all economic strata, and all ages and sexes. The element that unified all these people was the recognition of the technocratic forces that ruled them undemocratically.

In a sense it was a revolution of revolutions, for it redefined the mould of traditional Marxist class struggle and brought about a mass politicizing of what has been termed a "New Left." Greenpeace, which formed in the immediate aftermath of the protest, would learn to appropriate this Marcusian aesthetic into its own philosophy. As Hunter said, "There isn't a single political system around right now addressing itself to the ecological crisis. My feeling about the

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[88] Feenberg has masterfully covered the May Events in his 1999 book *Questioning Technology*. In many ways this section mirrors his views of the occurrence in France, although my take on the particular events of the birth of Greenpeace differ in an important way as the philosophy was markedly different in both cases while the results—revolutions in both cases—had their similarities.

[89] This detail comes from Hunter, Robert (1979) p. 3.

[90] Hunter (1979) claims that the distribution of the *Vancouver Sun* quadrupled during the founding of Greenpeace. He cites his editor stating that the voyage of the *Greenpeace* with its column by Hunter being a prime reason for this.

functions of a group like Greenpeace is to open another wavelength on the political system" (cited in Sturmanis, 1978, p. 7).

The birth of Greenpeace with the Don't Make a Wave Committee protest under the Douglas Peace Arch—many of its would-be leaders had jumped on the stage to charge the busloads of protestors into action—can best be understood then as a revolt not so much *for the environment*, but *against technical society* as it occurred amongst a greater scene of outrage against an emerging state technocracy. Rather than be pigeonholed by the classic socialist-versus-capitalist swath, the protestors had begun to fight a new battle, one against the undemocratic values of a vertical structure of governance inherent in a technical society. Many elements they struck out against were pinpointed in Weber's work where he labelled the seven elements of modern "bureaucracy" as rules, specialization, meritocracy, hierarchy, separate ownership, impersonality and accountability.[91]

The modern bureaucracy that the founders of Greenpeace faced, however, had at least one great variation perhaps implicit but still explicitly missing from Weber's historic model. In a word: technology. Technological society has been widely studied as an emergent factor from the Enlightenment onward from Heidegger, through the efforts of Marcuse and the Frankfurt School, all the way through to today with authors like Feenberg and Borgmann. All these would concur that modernity has enforced a bureaucratic atomization of the individual that has removed them from his/her surroundings via a technological mechanism that Heidegger called "Enframing" and Marcuse labelled "One-Dimensional Society." This was, essentially a critique on, as Foucault called it, power and knowledge.

For while the knowledge-based society in the Enlightenment was thought to be a giant and emancipating leap forward from the days of the monarchs with their God-given rights, it had somewhere along the way confined its subjects by the knowledge that was supposed to have liberated them. Like Plato had foresworn in *The Republic*, throughout modernity the philosopher-kings would rule, only this came with the operational detail that the most apt were thought to be the best schooled, educated, and connected to the system rulers. This was the same definition

[91] You can find more on this in Weber (1958).

given by members of science and technology studies (STS) who were researching this phenomenon. In many ways this was the same basis of the social structure of modern science. Greenpeace was but one of several emerging interest-groups involved in protesting the concentration of power in the scientific technocracy.[92]

The protestors who set off to the Douglas Border Crossing on October 1, 1969 managed to convey this in their reading of the Atomic test. For to start with, they directly opposed not only the U.S. government, they fought against the AEC, the scientific agency which had announced the "Milrow" and "Cannikin" blasts in autumn 1969 and 1971 respectfully. They protested that this would be the second and the third in a series of at least seven of increasingly powerful blasts. Yet the information surrounding the blast—dates, expected effects, and results—was shrouded in secrecy. And just like all of the previous and future detonations, the information would be confidential to only those in high government posts and working on the bombs themselves. By protesting against the secrecy involved, the activists went against the one of the staples of the emerging scientific hegemony whose reductionist world view separated the explosion from its results, geography from locality, and stripped away enough meaning to enable a rationalization of a nihilistic action on the par of Hiroshima—in this case risking a huge test on the highly volatile ocean bottom that was connected to the Earth's active San Andreas fault which transversed the entire west coast of North America. One of the Douglas Crossing's protest placards took up this concept of interconnectivity seriously, stating "It's your fault if our fault goes."

As we have seen, from its outset, the protest was neither communist nor capitalist in its position. Rather, it was a semi-spontaneous reaction by two non-governmental organizations (NGOs): the Sierra Club, a California-based nature preservation society, and the Committee to Aid American War Objectors, made up primarily of U.S. citizens and their sympathetic cohorts north of the border. The spectrum of the interests present was explicitly varied. The Sierra Club

[92] While proponents such as Feenberg posit science as offering the potential of a liberating force for humanity, it has often been criticized as a dominating or determining force as we have seen in the previous chapter. In response to the hegemonic aspects of the sciences, a radical group calling themselves Science for the People (SftP) took up an aggressive program to bring the sciences under democratic control in the early 1970s using mainly aesthetic methods of protests to a wildly varying degree of success and failure. The group has recently reformed. For more information on this group, please turn to their webpage at http://www.scienceforthepeople.com/.

was essentially apolitical in the traditional sense in the way that they were first and foremost interested in conserving nature. Their starting point was derived from the interconnected, cybernetic approach of ecology. The faction of deserters posed a more political stance, since they were necessarily U.S. citizens. It was clear that they were heavily anti-Nixon in their outlooks, and generally sympathized at least partially with the Democrats south of the border. On the more extreme side of the protesters were the likes of Rod Marining, who emerged from the radical contingent from the Northern Lunatic Fringe of Yippie.[93] There were also active members of the anti-establishment Vancouver Liberation Front that took part.

Back in their kitchen- and church-basement-meetings, the leaders decided to make a new organization and taking the name from a protest sign at the Douglas Border Crossing. They called themselves, the Don't Make a Wave Committee. They positioned themselves entirely against to the nuclear tests, yet they had no necessary political view for or against capitalism. On the surface, their appeal was one of immediate survival. If the wave created by this charge was as big as scientists said it could have been, then Vancouver and numerous human and non-human communities would feel the fall-out (in fact over a thousand sea otters died just from the monumental *sound* of the explosion). They wanted to harness the energy that had been generated at the protest and carry it through to stop the test of the "Cannikin" some two years later (they had been wholly unsuccessful at stopping the 1.2-megaton "Milrow" bomb that year). During one meeting that seemed to be getting nowhere in the organizers' home, Marie Bohlen quipped, "Why the hell doesn't somebody just sail a boat up there and park right next to the bomb? That's something everybody can understand."[94]

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[93] Yippies were a variant of the hippie movement which formed under the acronym of YIP—the Youth International Party. Radically youth-focused and theatrical in their protests, they ran under the banner of a black flag with a red star and green marijuana plant in the centre. Musician Phil Ochs was a prominent member of the Yippies and gave a benefit concert with Joni Mitchell, James Taylor and local band, Chilliwack to make funds for the initial *Greenpeace* journey in Vancouver just before the send off.

[94] This idea goes back to an ancient form of Quaker protest which was called "bearing witness." Greenpeace founders, Jim and Marie Bohlen and Irving Stowe were Quakers and they used their religious beliefs to fuel the movement. Quakers had already used this form of resistance against the AEC testing, but since they had been US citizens, the government had been able to remove their own subjects with a minimum of fanfare. In the case of Greenpeace, the fact that they were

The idea was born and the members were crystallized into action. However, the Sierra Club which was based in the U.S. and had a different agenda wanted nothing to do with the boat protest, and the organizers were not convinced about their Don't Make a Wave moniker. At the tail end of one of their many meetings, amongst the goodbyes, one of the leaders of the Don't Make a Wave Committee, Irving Stowe, waved the traditional "V" peace sign to the youngest member of the group, 23 year-old Bill Darnell, who responded, "Make it a *green* peace." Silence reigned as everyone realized the implications of the off-hand remark—peace *and* ecology. Consensus was immediate, and the boat and movement had unwittingly been named.

Now with a name and a plan, the members of Greenpeace realized that to make the message palatable to a large community of people from different walks of life and with radically different political views, they needed to make it understandable to them via an aesthetic approach, be it mental or media-based, that people could relate to. They had picked the image of a group of sailors humbly waiting for their immanent death in a fishing boat atop a nuclear explosion to exploit the asymmetry of the relationship between the powerful technocratic minority and the vast majority of powerless people on earth. This strategy would cut through the ribbons of scientific gibberish that could reduce the detonation to the sphere of an aseptic "scientific test."

The image posited by the activists in Vancouver had cleverly tapped into the Critical Theory—which I covered in the previous chapter and will be revisiting in the following paragraphs—that had emerged in the relatively recent field of the philosophy of technology begun by Martin Heidegger and continued by the likes of the Frankfurt School, Foucault and most recently Feenberg and Borgmann.

Heidegger's "The Question Concerning Technology" is a necessary deviation to understand what the activists were after. In this landmark text, he looked through a macro-scaled lens at the technical "*Gestell*" or "enframing" of modernity. His critique sought to expose that no longer is there an erotic relationship between man and his environment—one that opens and closes, advances and recedes yet cannot ever be understood completely. Rather, man posits the

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Canadian—or at least of another nationality—made the difference and forced the discussion into the international headlines and legal system. This fragment has been taken from Weyler (2004).

world via the ever "challenging forward" lens of technology. Our very grammar of being now enframes nature through the human-centric subject and reduces it as a "standing reserve" or a system component for man's complex web of needs and desires. The essence of the argument was that under this new grammar of being, we reduced our environment to what it *could* be to *man*, for example, in this case of a tree, it could be looked upon only as a potential wood source that can be technologically extracted for fuel or building or some other practical use. The response of the object "revealing" itself to the subject (and thus having subject-like properties), is completely torn away by modern thinking and condescended to the ranks of teleology. Thus nature is reduced to what Heidegger called "*Gegenstand*," having lost all dignity of its essence, which for the German philosopher was a terrifying prospect.

The members of Greenpeace stood at what they could conceive as the final moment of revealing that Heidegger himself had posited, whence quoting from a Holderin poem:

"But where danger is, grows

The saving power also" (1954, p. 34).

Heidegger clarifies the point somewhat on the final page of his "The Question Concerning Technology," stating, "The closer we come to the danger, the more brightly do the ways of the saving power begin to shine and the more questioning we become" (1954, p. 34). The planet, about to suffer yet another atomic attack on a crucial fault line that could overturn their existence, was posited by local intellectuals as perhaps being at the edge of the overgeneralization of technology, the absolute limit of nihilism. This is the point they sought to project as the world was pressed up against the wall with, as Hunter had said, a nuclear pistol pressed against its head.

Unfortunately, Heidegger's macro-level musings never came down to earth long enough to come up with a way out of this impasse. While he ended his life in despair, claiming infamously "only a god can save us," many of his followers have retaken his lead examining the effects of technological rationality on modern society which are worth retaking to position us in the framework of the times.

Marcuse who was one of Heidegger's students determined, just like his teacher had, that we lived in a "One-Dimensional" society and attempted to offer a more practical approach to the

issue at hand. He brought the problem of technological society down to the dialectical relationship of Eros and Logos. The combination of these two was, to Marcuse, the building block of the possibility of two-dimensional thinking. He states that the reconciliation of the Logos and Eros "pertains to the metaphysics of liberation" (1964, p. 167). Combined, these two necessarily complimentary elements will envisage the "coming to rest of the repressive productivity of Reason, the end of domination in gratification" (1964, p. 167).

As opposed to the ideologies of what he considered philosophically collapsed thinkers (like Saint-Simon, Wittgenstein and Austin), Marcuse's standpoint requires Hegelian dialectics and the "the power of the negative" (1964, p. 171). That is, much like Heidegger's point, the idea of the interplay between simultaneous concealment and unconcealment in every revealing. The ontological ramifications thus transcend the operational "is-ness" of a thing, and include their "ought-ness"—their inherent possible states of being.

The one-dimensional state, on the other hand, is a particular and simplistic kind of revealing, one that can be quantified or measured (Marcuse, 1964, p. 29). This overriding modern revealing has become so repetitive and formulaic that it has developed into a "certain kind of rationalism" (Marcuse, 1964, p.171). This stands in stark contrast to the multifaceted, never-really-reachable, two-dimensional concept he encourages. Brought down to the specific, this erotic way of understanding reality means that we can never expect to completely understand our natural context. It will reveal itself to us and to others differently on every occasion, if we are prepared to accept it as it is as and as what it could be.

Of the many heuristics with which one-dimensionality can be examined (he cites politics, the history of science and concept of the measurement of work amongst others) language is an important one. He analyzes how universal statements are particularized through technological rationality and operationalized into definable outputs, technological problems.[95]

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[95] In his book *One-Dimensional Man*, Marcuse (1964) deconstructs the phrase, "Wages are too low" (p. 118) as it gets "operationalized" by a human resource specialist in an urban setting. The particularization is seen as a positive step forward, for the company and for the employee, as it seeks to resolve the particular problem of a substantive universal. The logical progression from "wages are too low" to "this particular worker needs more money" destroy the implications of the former, by replacing them with a reductionist model.

With that begins "a truly therapeutic effect"—a remedy for the individual worker can be put into place (or not depending on the case) to the general euphoria of getting the job done well. As Heidegger would say, however *correct* this is, it is not *true*. Operational rationality, like that which proposed the tests at Amchitka, eliminates the possibility of thinking about nebulous, non-concrete concepts, and therefore it destroys all critical thought (like why the heck are we creating these bombs!). One-dimensionality collapses thought and reduces the human and thinking condition to responding to outputs. The danger is, as Marcuse states clearly, "Many, and I think the determining, constitutive facts remain outside the reach of the operational concept" (1964, p. 112).

With the technological transformation of the world, a mental one has followed suit (Marcuse, 1964, p.66). Modernity has charged the operational into the political. The transitive meaning found in the original dialectical relationship between Eros and Logos is thus lost. And a much simplified paradigm of positivistic relations builds resulting in an institutionalized concealing of facts that are condescended as teleological.

But by revitalizing what modern science had discarded as mere teleology—the concept of possibility—Marcuse sought to bring back to the world a continuum of possibilities. This was clearly the flip side of the world of actuality presently employed by the sweeping technological rationality that ruled the postwar world. He, like the founders of Greenpeace fought for substantive universals—universal concepts like freedom and peace that have a critical potential against the actual state of things. This aesthetic approach, one that Marcuse himself fought for, would play heavily into the arsenal of the Greenpeace organizers against the technical society they fought against. The image of an old fishing boat on a nuclear wave in some ways plays this artistic prophesy as an aesthetic agent of transformation, poetic in its simplicity and profoundly dialectic in its nature.

This aesthetic approach exposed the central weakness with technological rationality, that if everything is to be treated as a technological problem, then there is no space for transcendental or radical change. The image of the ramshackle *Phyllis Cormack*—or *Greenpeace*—versus the U.S. military complex revealed the very basic moral and ethical limitations of the technical

standpoint and exploded them into a powerful message of this type. It showed through its simplicity how, as Marcuse had posited, the rules of the game were rigged against the common person.

Thus as we can see, in an important way this ecological approach did not side with either of the two major forces active in the Cold War since both looked at technology as a utilitarian good for the taking. Whether it was by the followers of Karl Marx or Adam Smith, technology had been seen through a positivistic lens as a necessary agent in the freedom of its peoples. The members aboard the *Greenpeace*, as part of the New Left and at the cusp of the environmental movement in 1971, would question just this scientific and inherently reductionist one-dimensional stance of the hegemonic technocracy on both sides of the political divide. Their mode of critique blasted the hegemony's oversimplified means of understanding reality. It showed the folly of compartmentalizing a complex messy reality and reducing it to its functions or operations.

Barry Commoner, one of the leading ecologists in the United States who was heading a group of scientists in protest against the nuclear test back in Washington at the time, critiqued the scientific mores of the times in simple terms, "The natural tendency to think of only one thing at a time is a chief reason why we have failed to understand the environment and blundered into destroying it." (1971, p. 26) But more than reducing the ecological debate to the environment, he continued:

> The environmental crisis is a sign that the ecosphere is now so heavily strained that its continued stability is threatened. It is a warning that we must discover the source of this suicidal drive and master it before it destroys the environment—and ourselves.
>
> Environmental deterioration is caused by human action and exerts painful effects on the human condition. The environmental crisis is therefore not only an ecological problem, but also a social one. (Commoner, 1971, p. 112)

Thus, the environmental movement was truly counter-hegemonic. It went beyond the boundaries of promoting the natural environment and into the politics of the technical sphere. There was something of and for everyone in its realm. With precisely that point, Greenpeace was able to broadcast its message to a receptive public.

Over the mounting high-tension days in autumn 1971, the *Phyllis Cormack*—renamed *Greenpeace*—had been loaded with media reporters, a photographer, scientists and activists all of whom were busy chronicling their progress in both the mainstream and underground press. Much aided by the media attention given to these "Warriors of the Rainbow," as they had begun to call themselves, the doomsday image of the boat atop the nuclear explosion grew and grew in the collective consciousness as the media-savvy members of the organization loaded their articles with such propaganda emphasizing the asymmetry that had developed into normalcy in modern democracies.

Vancouver, British Columbia offered the perfect launching off point for this message as it remained one of Canada's smallest, large cities. Its fascinating and plentiful west coast rain-forest geography and natural wildlife had made it a paradise for nature- and wildlife-conscious people. It was home to a kind of population which stood in repulsion to cutting trees in the town centre, let alone firing off nuclear explosions in its backyard.

2.2 Ecology and the People

"Ecology? Look it up, you're involved!"

—Text from the billboards posted by Ben Metcalfe around Vancouver, 1969

The 1970s would see an explosion of public interest in the environment. Dozens of new organizations formed from local ecology centers to national committees of the likes of Friends of the Earth, The Natural Resources Defence Council and Environmental Action. The growth of the environmental movement had become a truly international phenomenon. This reality was marked with the crowning of Earth Day which saw 25 million people celebrating its 1970 inauguration. This festivity would soon become the largest non-religious celebration on the planet. Thus ecology with its interactive, holistic methodology had evolved from its roots in the science of biology to touching everyone in the planet and making them interrelate. It was beginning to show

its capacity for integrating people of all walks of life and to radically transform and proselytize at the same time.

There are some important similarities between the environmental movement and the one that shook France in 1968. Feenberg examines the latter in his book, *Questioning Technology*. He shows that one of the most important facets for the relative success of the French revolution in '68 was that the student-driven movement was able to dislocate one of the structural bases of capitalist democracy: the allegiance of the middle strata to the established parties and institutions (1999, p. 31). This definitive capacity enabled a radical societal change not just in France, but on a global level, for it would alter the balance of power inherent in modern technocracies.

This was the case with the Greenpeace movement who, by embodying a holistic philosophy that countered the dominant technocracy, was able to revolutionize all strata simultaneously, bringing capitalists and Yippies, union workers and native Canadians, hippies and housewives all side by side. Perhaps the height of the power of the environmental movement was when even Richard Nixon showed up to endorse the first Earth Day celebration on April 22, 1970 and followed up with the creation of the Environmental Protection Agency (EPA).

Greenpeace saw this happening throughout their Amchitka mission. By universalizing their protest through their poetic, aesthetic vision of "bearing witness," the institution had made tangible the power of collective works in creatively "non violent direct actions" within the public sphere. Their message was clear—there was no use waiting for protocol in a profoundly undemocratic technocratic system. Besides, since the Greenpeace protest was instinctively not a Left/Right issue, it would not divide people. Rather, due to its ecological philosophy it was a hugely and necessarily *inclusive* organisation. In this case, neither the Left nor the Right, nor the rich—many of whom lived in seaside villas overlooking the Pacific—nor the poor could see the benefit of being knocked down by a nuclear test-generated wave, from, of all organizations, the much-loathed US military.

As the group developed, their protest versus the hegemonic technocracy grew in complexity. What began as a reaction quickly evolved into a world view that was both deconstructive of the present status quo and constructive for a new way of ruling. In many ways

Greenpeace tried to enact what Feenberg calls the triple edged strategy of "self management" (1999, p. 39). For it had been successful at attacking the general apathy of most sectors of the public sphere through the protest and the media coverage thereof, and importantly it was able to continue the pressure through organizing this receptive public into a dynamic and multi-dimensional political force and thus avoided at any time being reduced to a juvenile protest status. Secondly, the Greenpeace response would essay to contend for a radically participative democracy, redefining the relationships amongst actors and recreating more symmetrical relations amongst all. And finally, and connected with the previous point, they would pursue a passage from a vertical, technocratic *undemocracy* to a cybernetic or ecological democracy amongst its members. This creation of an ecologically-modeled democracy would limit the power of the authorities who clearly were abusing their power. In many ways they were after safeguarding future society against techno-bureaucratic oppression. Thus with these elements playing in the balance, the revolution emerged as ecological, social, philosophical, and constructive at the same time.

Not surprisingly, with a message of that magnitude of seductiveness and complexity, the ranks of the ecologists were swelling. As Hunter remembers, "The week before the boat left was madness. Thirty-five people had applied to be on the crew" (1979, p. 16). Yet, there were only berths for 10 plus the skipper and engineer. Hunter muses why:

The stakes *seemed* to be high. There could be no doubt that the voyage had already served its first purpose. It "had drawn attention" to the issue. It had captured public imagination. Politicians were having to deal with it. The U.S. military itself was known to be "making preparations." We were being treated seriously. The wire services were covering us. There were reports of border blockades across Canada. (1979, p. 28).

Within three days at sea, Prime Minister Pierre Elliott Trudeau had called on the radiophone to announce that he was asking the government of the USA to halt the test. A war of philosophies-turned-rhetoric had emerged in the public sphere. The phenomenon of the development of this was quite spectacular. For example, by the time the boat arrived in Alert Bay,

a remote islet off the northern tip of Vancouver Island, they were greeted by 40 of the Kwakiutl Native American tribe who anointed them and made them brothers of the Kwakiutl people.

Powerful lobbyists like Barry Commoner and his group of scientists had fought a valiant but losing fight in the courts. However, their inquiry cracked some of the internal documents sworn to the secrecy in the build up of the explosion. The *Vancouver Sun* reported on Thursday November 4, 1971 that a key adviser, Russell Train, Chairman of the Council on Environmental Quality and the President's Chief Advisor on Environmental Policy to Richard Nixon, had written in an internal memo stating that he had "significantly stronger doubts about the safety of the Amchitka test." They quoted Train's warning to his peers: "the underground explosion could serve as the first domino of a row of dominoes leading to a major earthquake."

Meanwhile in this strategic game of media chess played out expertly by the strategists on both sides, Greenpeace exploited the image of the juggernaut coalition of the AEC, the U.S. government and the U.S. military versus the humble *Phyllis Cormack*, for it replayed the perfect representation of just what Greenpeace sought to expose—the inherent inequality and asymmetry in the relationship between rulers and ruled in a technological society despite the fact that it was supposedly a democratic society. However, the technocracy had its own plans. By the time the ecologists' fishing boat had crossed into Alaskan waters, the members of the crew fell into a bureaucratic trap set up by the coalition.

Their *Greenpeace* was boarded by the *U.S. Confidence* once in Alaskan waters who charged the Canadian fishing boat on a violation of Section 19 USC 1434 of the Tariff Act of 1932. The petty violation, for crossing the border without reporting to customs, had rendered the Greenpeace mission untenable. They were made liable with a fine of five thousand dollars and/or the forfeiture of the vessel. Nevertheless, Greenpeace unwittingly won some strategic points from the encounter. For, while the US Commander spoke with the skipper of the *Phyllis Cormack* the junior members of the *Confidence* wrote a cablegram to the members of the *Greenpeace*. Their note stated their unwavering support of the ecologists:

> DUE TO THE SITUATION WE ARE IN, THE CREW OF THE "CONFIDENCE" FEEL THAT WHAT YOU ARE DOING IS FOR THE GOOD OF ALL MANKIND. IF OUR

HANDS WEREN'T TIED BY THESE MILITARY BONDS, WE WOULD BE IN THE SAME POSITION YOU ARE IN IF IT WAS AT ALL POSSIBLE. GOOD LUCK. WE ARE BEHIND YOU ONE HUNDRED PER CENT.

The media-savvy journalists knew the power of the message, and quickly they broadcast the cablegram via the mass media across Canada and with it were finally able to break the silence of the US media in reporting the event. So while the *Phyllis Cormack* was sent back to its home base, the home to which it was sailing to would not be the same they had left. Incited by the absurdity of the bomb test and the powerful image of the *Phyllis Cormack* bearing witness and the cowardly bureaucratic trap set by the government, revolution was in the air.

With days left before the bombing, the organizers at the Greenpeace office in Vancouver were seeing more and more donations coming in. In fact, they had enough to pay the fine and charter another boat—this time a modern, 200-foot long minesweeper (ironically a military vessel) called the *Edgewater Fortune* and renamed the *Greenpeace Too*—with a larger crew. The protesters not only depended on the technology of this improved vessel over the *Greenpeace*, they also armed it with more artillery for their mass media Mind Bombs. As Hunter describes, the second vessel was filled with ten times the number of volunteers to board the first boat. And it set out armed with "more cameras on board... than you could count at a glance" (1971, p. 95).

And the movement gained strength. What had begun by a couple of environmentalists and anti-war activists would finally come full circle and include the unions. On November 2, the BC Federation of Labour took out a 1/3 page add on page 16 of the Vancouver Sun calling for a "Shutdown for Survival" demanding readers and union members into action by saying "Don't let future generations ask: WHERE WERE YOU WHEN THEY JEOPARDIZED OUR WORLD?" The following day, Ray Haynes, the BC Federation of Labour secretary-treasurer rallied with the thousands of people at the protest in the pouring rain. "For the first time in North America," he stated with a voice tinged with emotion to the crowd gathered outside the U.S. consulate in the Burrard Building, "workers are downing tools not over wages, not over working hours, and not over working conditions, but because of a danger to all mankind" (cited in page 39 of Bob

Hunter's November 4 column in the *Vancouver Sun*). Few moments had been as decisive as when hard-hats marched side-by-side with the hippies.

Hunter concurred in his column, stating the purpose of the Greenpeace revolution, "I have believed that ecology is a bridge of green, spanning not only the generation gap but the gap between workers and students, left and right, rich and poor. (*Vancouver Sun*, November 4, page 39) The movement had shown its color. And as Rod Marining had stated, it was not red. It was green.

Yet Nixon remained unmoved. His next move, declaring a November 4 detonation, was met with protests everywhere across Canada, throughout the US, and in Japan and England. Yet the magnitude and creativity of the protest had grown exponentially. Canadian authors Pierre Berton and Charles Templeton drafted a petition to President Nixon that he "immediately cancel" the test. Their telegram was half-a-mile long containing an estimated 177,000 names of Canadians.

An article in the Vancouver *Province* dated November 5, 1971 reported on the event: Western Union, which had been receiving the telegram for four days, said it believes it is the longest message it has handled in its history anywhere in the US. The brief message atop the names said: As your neighbours, we consider your action in approving this test incomprehensible... You are playing Russian roulette next door to where we live. We ask you in the name of sanity and common sense, to stop it now (Cited in Brown & May, 1991, p. 15). Author Rex Weyler notes that the telegram was also signed by Nobel laureate Linus Pauling, Jean-Paul Sartre, and Simone de Beauvoir (2004, p. 130).

At the same time, the Washington Post published an open letter signed by prominent Canadians including Burrard First Nations Chief Dan George and former Canadian Prime Minister Lester B. Pearson. The New York Times which had paid little attention previously to the pressure by the ecologists declared that the thermonuclear test represented "the folly of a species that burns and poisons and blows up its own home" (cited in Weyler, 2004, p.129).

These protests were joined by the Japanese where acts of non-aggression included a massive sit in at the memorial peace gardens in Hiroshima as well as protest cables sent to the

president of the USA by officials in Hiroshima, Nagasaki and Tokyo. The UN's Peace Council also blasted the detonation as "inhuman, barbaric" (cited in the *Vancouver Sun*, Monday Nov. 8 1971, p. 20).

However, despite the opposition, at 11:00 am Bering Sea time on November 6, 1971, the secretary of the AEC, James R. Schlesinger, gave the final order for the detonation of the bomb. The *Phyllis Cormack* had long since returned home to Vancouver. And the *Greenpeace Too*, which had left port a week and a half earlier, was still far from its destination having been stalled by freak storms through Georgia Straight, struggling impotently against the waves some 900 miles from the explosion at the time of the blast.

Seismographs recorded an earthquake of the magnitude of 7.2 on the Richter Scale at the University of British Columbia in Vancouver (*Vancouver Sun*, Sunday, November 5, 1971, p. 2) Yet the headlines went to Schlesinger, the head of the AEC who, playing the devil's advocate had pulled a media stunt of his own, and was photographed at ground zero of the blast with his 9-year-old daughter, Emily.[96] On Sunday November 6, the Vancouver Sun like many other national and international papers ran the headline "Amchitka N-Blast: Safe, Successful" with an image of Schlesinger and daughter walking away from ground zero on Amchitka island. He was widely quoted as quipping enthusiastically "All preliminary indications are that the test was conducted successfully and safely," minutes after the blast, which had been recorded as the 520th bomb test since the beginning of the nuclear age. It would not be the last.

However, the Pandora's box of the undemocracy of the scientific technocracy had been opened and no matter what the leaders would say, the image of a righteous minority leading the non-expert majority had been exposed as fraudulent.

The Greenpeace battle—except for the final stage when it was shared by groups in Japan, England and in particular the populations within the U.S.—was not an essentially political battle in the traditional sense. Its protestors could have no direct voice to the government in the

[96] Schlesinger had claimed that Amchitka was the perfect place "for a picnic" with his daughter. Truthfully, he spent the time in the U.S. Army's concrete bunker which was (fortunately for them) mounted on a set of high tension springs. Had it not been it would have been likely that they would have suffered the same fate as much of the birds which were killed by their own legs which were driven inside them by the force of the blast.

country that was perpetrating the bomb. Following the call of Tom Hayden's 1962 "Port Huron Statement," these collective non-violent direct actions asked for a change of the way the world was to be ruled in all nations *per se*. Following this method, participatory democracy was to be enacted by these non-violent acts of civil disobedience.

On one end of the spectrum was the concept of a radical sense of democracy that crossed national borders, but with that sense of supranationality came the very important sense of interconnectivity. For the world as it was so governed was equally fractioned. Its knowledge base—science—was equally fractured and was based on the reduction of reality into bite-size, manageable pieces. The environmentalists made it clear that the human-based, utility-based one-dimensional vision was no longer acceptable in today's interconnected world.

The ecologists had made possible the awareness that everyone was indeed part of this world. And a network of peoples, now communicating on a new form without state intervention began working together. This was one of the principle birth rites of the New Left. It offered a novel way of understanding the world. The private was the political, as Bob Hunter had stated boldly throughout. So in a very real way, considerably before the U.S. Army and the AEC combined to detonate the five-megaton *Cannikin*, the rippling effect of the Greenpeace Mind Bomb, of a profoundly undemocratic techno-scientific "democracy" that was doing as it pleases, shot through the collective consciousness of all classes and drove home the message of our interconnectivity mixed with the political ramifications thereof with much greater effectiveness.[97]

It was so great that the generally apathetic middle strata not only got off the couch and even in some cases hit the street, but in many examples they took up a more creative role, closing off border crossings, signing petitions, and in the most impressive exemplars, vying for a voluntary position on the *Greenpeace Too* that was to be parked inside the immediate radius of the nuclear bomb some 3,800 kilometres across rough seas. The early stages of ecology thus brought about the understanding of a divisionless society and biosphere. Interconnection meant

[97] Kevin Michael DeLuca (2005) presents a powerful, Heideggerian critique against the Greenpeace method of an image war in a paper arguing that it presents nature as an object and reinforces the human as subject—the critical problem of the Cartesian duality most environmental movements seek to end.

compassion. Dr. Patrick Moore—Greenpeace's founding biologist made an ecological refrain that was starting to make sense to hippies and hard-hats alike: "A flower is your brother" (cited in Hunter, 1979, p. 2).

The Greenpeace Declaration of Independence sums the position up well:

> Ecology has taught us that the entire earth is part of our "body" and we must learn to respect it as much as we respect ourselves. As we love ourselves, we must also love all the forms of life in the planetary system—the whales, the seals, the forests, and the seas. The tremendous beauty of ecological thought is that it shows us a pathway back to an understanding of the natural world—an understanding that is imperative if we are to avoid a total collapse of the global ecosystem.
>
> So let us work together to put an end to the destruction of the earth by forces of human greed and ignorance. Though an understanding of the principles of ecology we must find new directions for the evolution of human values and human institutions. Short-term economics must be replaced with actions based on the need for conservation and preservation of the entire global ecosystem. We must learn to live in harmony, not only with our fellow man, but with all the beautiful creatures on this planet. (Cited in Weyler, no date).

2.3 The After Effects

While Schlesinger had claimed victory, *Time* magazine reported the contrary in their follow up issue on the blast, stating "Seldom if ever, had so many Canadians felt so deep a sense of resentment and anger over a single US action. For once, the cries of protest were not confined to the radical Left, but came from a broad spectrum of Canadian society."[98]

Local scientists would also examine the "success" and broadcast their findings. The crater from the Cannikin blast would widen to one and one-half miles wide and 60 feet deep. And despite an AEC cover-up, researchers from the University of Alaska, at Fairbanks found more

[98] While this editorial was found in the Canadian issue of *Time* on page 13 November 15, 1971, the U.S. edition made no such statement.

than 1,000 sea otters plus innumerable seal, seabird and fish perished in the explosion. And according to Dan O'Neill of the University of Alaska:

> The bomb blast lifted the earth with such force that shorebirds standing on the beach above the explosion had their legs driven up into their bodies. The eyeballs of otters and seals burst through their skulls from the over-pressure caused in the ocean. (Cited in Wyler, 2004, p. 69)

With mounting international and national public pressure and resentment versus the Republican administration, the AEC and Nixon would within four months announce the end of the Amchitka tests in the Aleutians for "political and other reasons" (Cited in Hunter, 1979, p. 113).

Chapter Conclusions

"Knowledge had been democratized"

—Bob Hunter[99]

The technocratic state as posited by Marcuse is based on the premise that those with education and competence will succeed. To a certain extent, this is like Plato had projected in the Republic—that philosophers would rule. And generally they did. Anglo dominance on the planet showed a strong bias to western philosophy under the Cartesian dualism, one that separated the mind and body and prioritized the mind. The Greenpeace movement was a mix of all spectrums against what Marcuse had posited as the basis of technologic society—a fundamentally undemocratic means of rule. The movement went against the dualist philosophy that had dominated Western and subsequently hegemonic thinking—the basis for its social domination.

The assault on technology was not really so much about knowledge as it was about questioning its rule, one that made an absurd state-based reduction that brought the magnitude of testing a five-megaton nuclear bomb down to its fiscal imperatives and calling it "scientific." The environmental movement questioned the epistemology of the hegemony on both sides of the

[99] Cited in Weyler (2004, p. 132).

political spectrum. Thus Greenpeace was able to leap beyond the standard "Left" and "Right" boundaries and begin questioning, as Heidegger had done most famously with his 1954 text—and re-pose the "Question Concerning Technology".

Importantly, Greenpeace began not as an anti-scientific or technophobic movement. Rather—as can be seen by its manipulation of the mass media, its use of a modern military craft, the *Greenpeace Too*, and its scientific basis—it can be seen as pro democracy. Their protest, like that of Science for the People's was not a strike against science and technology *per se*, but rather the way science technology was ruled by a fundamentally undemocratic technocracy in the modern political sphere.

The metaphor was to change not only who ruled but how they ruled. No longer would individuals have to fit into the constraints of a preordained society, they were empowered to create their own. Of course, instead of a traditional revolution, the members of Greenpeace used a war of images, which can best be understood in the sense of a Marcusian aesthetic, an image that was poetic and revealed the inherent discrepancy of modernity—the subjugation of man to one-dimensional thought. This undertaking embodied a radical deviation from the standard counter-cultural model in western society since Marx, for it hit on all the elements from Trotskyites to Yippies to housewives and carpenters and union members. It stretched through the media and interested students, teachers, religious leaders and even the prime minister of Canada.

As Marcuse stated:

> Revolutionary in its theory, in its instincts, and in its ultimate goals, the ... movement is not a revolutionary force, perhaps not even an avant-garde so long as there are no masses capable and willing to follow, but it is the ferment of hope in the overpowering and stifling capitalist metropoles: it testifies to the truth of the alternative—the real need, and the real possibility of a free society. (1969, p. 54)

Unlike the socialist movements that can be said to predate the founding of Greenpeace, the ecologists fought for a radical democratic equality that the modern technocratic apparatus had destroyed. The visionary democracy put forward no longer was limited to members of the oppressed classes in particular nations, but one that crossed national boundaries and

encompassed all species. And to all those in Vancouver and all over the world—one has only to look at the exponential growth in Greenpeace's membership—, this was something worth fighting over.

Marcuse, while describing the May Events in Paris in his Preface to *An Essay on Liberation*, could have been writing about the members of Greenpeace. For theirs, too, was a battle of what he called the "new" subject of change in advanced capitalist countries: the consciousness:

> The militants have invalidated the concept of "utopia" [of the present society and the end of history]—they have denounced a vicious ideology. No matter whether their action was a revolt or an abortive revolution, it is a turning point. In proclaiming the "permanent challenge"... the Great Refusal, they recognize the mark of social repression, even in the most sublime manifestations of traditional culture, even in the most spectacular manifestations of technical progress. They have again raised a spectre...: the spectre of a revolution which subordinates the development of productive forces and higher standards of living to the requirements of creating solidarity for the human species, for abolishing poverty and misery beyond all national frontiers and spheres of interest, for the attainment of peace. In one word: they have taken the idea of revolution out of the continuum of repression and placed it into its authentic dimension: that of liberation.
>
> The young militants know or sense that what is at stake is simply their life, the life of human beings which has become a plaything in the hands of politicians and managers and generals. The rebels want to take it out of these hands and make it worth living; they realize that this is still possible today, and that the attainment of this goal necessitates a struggle which can no longer be contained by the rules and regulations of a pseudo-democracy in a Free Orwellian World. (1969, pp. ix-x)

Fundamentally, then, Greenpeace realized the democracy-threatening situation and sought an aesthetic understanding of the world that Marcuse has forwarded in his work; but, with the twist that theirs was based on the substantive universal of nature. In this sense their orientation was similar Henry David Thoreau's who had said some hundred years earlier, "In wilderness is the preservation of the world."

CHAPTER 3. DEVELOPMENT AND TECHNOLOGY: FROM DIVERGENCE TO CONVERGENCE TO TOLERABILITY

Introduction

It was July 22, 1944, and the seven hundred finely dressed international delegates were waiting in complete silence in the Mount Washington Hotel's ballroom, a masterpiece of Spanish Renaissance Architecture at the foot of the Presidential Range in Bretton Woods, New Hampshire. The members of this exclusive gathering awaited the cue as the operators for the Columbia Broadcasting Corporation were counting down to signal to Henry Morgenthau, Jr., the U.S. Secretary of the Treasury, to tape his farewell address to the International Monetary Conference. The silence seemed all the more intense as all those that were present were under the hardened gaze of an army of security forces that was intensely watching the radiomen, the doors and waiters, as the conference was attended by some of the most important people in the world at the time, including President Roosevelt of the United States, the brilliant economist, Lord John Maynard Keynes of England and high-ranking officials from 44 different nations.

"I am gratified to announce that the Conference at Bretton Woods has successfully completed the task before it," Morgenthau began in a self-congratulatory manner, finally breaking the silence of the expectant ballroom and blaring through the airways of the households of the United States.

> What we have done here is devise a machinery by which men and women everywhere can freely exchange, on a fair and stable basis, the goods which they produce through their labour. And we have taken the initial steps through which the nations of the world will be able to help one another in economic development to their mutual advantage and for the enrichment of all. (US Department of State [USDS], 1944, p. 1116)

The intense applause left off enough for the Brazilian delegate, who had been assigned the task of delivering the "Resolution of Thanks," to suggest that the proposed Fund and Bank

were both "inspired by a single ideal—that happiness be distributed throughout the face of the earth" (USDS, 1944, p. 1120). And the cheering again resonated.

For all those international financiers and government attachés present, "happiness" was something to celebrate about. While World War II (WWII) was still raging in Europe and Asia, what had been discussed in this hotel over the past three weeks was the beginning of a new world order that had just designated the US dollar as the backbone of international exchange, set the gold standard to US$35 an ounce and founded of the International Monetary Fund (IMF), an institution that would free international trade from the restrictions of exchange controls, multiple exchange rates, import quotas, trade discrimination, excessive tariffs and the like, and the International Bank of Reconstruction and Development (IBRD)—now called the World Bank[100]—which was set up to fund the reconstruction of Europe and begin development relief to countries of the south through the mobilization of mainly private capital. Given the prior conditions of the gold standard, improved connectivity amongst nations, consensus on capitalism, and the newfound importance of the US dollar, these two institutions promised to pave a better future for all of those present.

The Bretton Woods Twins, as they would later be known, would revolutionize the concept of global economics throughout the planet. These institutions would be run by a union of high-ranking and highly paid scientists, specialists, politicians and bankers who would be backed by the finest science of the day. Science and politics would play closely together in this organization—the President of the World Bank would be and has been hand-picked by the President of the United States until the present day. European leaders by tradition have always chosen the head of the IMF.

Despite the diversity of nations present (all five continents were represented and even the Soviet Union was in attendance at the meetings), the project was an amalgamation of a

[100] For the sake of simplicity, when using the term World Bank, I am using it in reference to the World Bank Group made up of the Bank, the International Development Association (IDA) which was formed in 1960and the International Finance Corporation (IFC) which came into being in 1956. Together, the three aim at funding international development, only with slightly differing mandates and clients.

uniquely Anglo economic vision, in particular of the British under the vertical Keynesian plan[101] which sought full employment and economic stability, and to a much greater extent, the U.S. drive for open markets and free trade, which was perhaps best synthesized by the famous U.S. economist, Walter Whitman Rostow, in his *Five Stages of Progress, A Non-Communist Manifesto*, the foundational text in development economics that we will examine in close detail further on in section 3.3 of this chapter.

The economic synthesis that emerged in the postwar was based on a premise that would mark international development politics for at least the next sixty years. It was called Convergence Theory. While we will investigate it in more detail in this chapter, to open the discussion we can state its basic premises: firstly, it was based on a simple principle, that if every country mobilized under the same industrialized economic strategy, they would eventually all become rich. Furthermore, convergence was heavily tied into the concept of a universal modernity, which in turn as we have seen in the previous chapters is a positivistic conception of modernity and technology. Walter Rostow's take on Convergence Theory stated that while becoming rich, all countries would naturally evolve materially and techno-scientifically like their modern counterparts in the north, particularly the United States. This second aspect would imply the creation of a technocratic leadership based on a scientific program, one that was emerging in the US as we will shortly see, and would be parroted internationally. Not surprisingly, as convergence was primarily an exported philosophy and the World Bank was to become the leading proponent of world development, Rostow's thesis would mould the international development scene until the present.

The purpose of this chapter is to first explain the historical detail for which the technocracy was born, and second, describe what happened as a consequence to its institutionalization both in the United States where it was conceived and abroad in the countries of the south throughout the UN's development programs.

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[101] Keynes, like Dexter White was explicit in his desire for a techno-scientific hierarchy to control the public sphere and in his distrust of the acumen of the common man. "It is most dangerous," he wrote, "that the people should, under normal conditions, be in a position to put into effect their transient will and their uncertain judgment into every question of policy that occurs" (cited in Caufield, 1996, p. 60).

In this chapter, then, I trace the history of development from its beginnings in the postwar to the birth of its institution *par excellence*, the World Bank, to its evolution into a structure based on the positivist conception of Convergence Theory which has led to the formation and permeation of a modern and elitist technocracy throughout the planet. Historically speaking, the technocracy that was born from the Convergence Theorists was battled against by radical environmental groups and non-governmental organizations (NGOs) starting as early as the 1950s, gaining power in the late 1960s and reaching a high point in the 1980s. Using the foundations of Critical Theory as per Heidegger, Marcuse and Feenberg, as discussed in the previous chapters of this thesis, I investigate the strengths and weaknesses of developmental policies and practices that have been revealed throughout the postwar time period—all the while focussing on the democracy/technocracy dialectic that has been posed earlier in the thesis.

It has not been easy to combine the historical narrative with an analysis of the workings of developmental policy and practice. I realize that this attempt to cover both ends—the history and the analysis—is bound to err in one of two directions. Either I focus too much on the details of the history, or the analysis overwhelms the history of the organic growth, and the process is all but mislaid in the critique. While I cannot claim to have succeeded in completely overcoming this problem, I have made every effort to do so by using the following structure.

Firstly, I will contextualize the discussion by describing the birth of the historic possibility of modern development, which was the emergence and realization on a world scale of its dialectic state of underdevelopment. Next I will introduce the theory of convergence that underlies this development concept. Of great importance is the tangent concept of universality and subsequent positivism supported by the foremost economists of the day. From this point we will examine the realization of these philosophical premises in the creation and ratification of the World Bank by world leaders in the immediate postwar. In this particular instance of pragmatic philosophy, we will investigate the institution's technocratic—in the sense of Feenberg who calls it "a wide-ranging administrative system that is *legitimated* by reference to scientific expertise rather than tradition, law, or the will of the people" (1999, p. 4)—interests and particularities during, as sociologist of science Bruno Latour would say, its hot, or creative stage.

By tracing these modalities into the Bank's lending patterns and infrastructural biases we will see how the universal pretence for development was enacted. In this section I will investigate some of the early cases of lending and their immediate results to the local populations and political structures, paying close attention to the systemic dependence on massive technology transfers and its resulting social effects on the democracy/technocracy dialectic that I have posed through the earlier chapters of the thesis. At the chapter's end we will revisit the work of experts on economic theory as it appeared after forty years of the development experiment. This will enable us to see what specialists in the field were saying about the development experiment. In addition we will see the United Nation's response to the economic specialists and environmental and other activists in the 1980s.

My aim throughout this chapter is to show how the practice of development resulted in mega techno-scientific projects that enabled the evolution of technocratic and largely autonomous political structures in the sense that we have seen with Langdon Winner, Thomas Hughes and in effect, to a certain extent with Heidegger, earlier in the thesis. The end result was, in contrast to its promise of convergence, an enhanced polarization between the rich and poor, powerful and powerless, both inter- and intra- nationally and a situation of political undemocracy. The environmental calamity, mass poverty and human suffering that coincided with this rule were, while a critically emergent property of this inherently violent situation, just one of the many elements affected by the rule of an autonomous and autocratic technocracy that the World Bank's international development projects had helped to commence. Thus, the argument seeks to tie in with the previous chapter in showing that the environmental movement was not only pro-environment, but was also pro-democracy in the face of an emerging undemocratic technocracy.

3.1 The Birth of Underdevelopment

Of the many elements of the industrial age to create large scale change, the modern conditions of *accumulation* and *efficiency* were fundamental. Jean-Philippe Peemans investigates this in his work *Le développement des peuples face a la modernisation du monde: Essai sur les rapport entre l'évolution des théories du développement et les histories du "développement réel"*

dans la seconde moitié du XXème siècle. In this text he describes how from the beginnings of mankind until the middle part of the 19th century, society in general lived in a state of non-development, which essentially was a means of subsistence living. Just about everywhere on the planet, food crops were largely dependent on natural patterns and mild to severe alterations in these patterns resulted in a breadth of livelihood that ranged between feast and famine for local communities. Nature's bounty was nature's own and since it was out of his control, man thanked his numerous gods for what he got.

But with industrial production, which most historians would date as arising with the invention of the steam engine in late 18th century England and becoming an irreversible force in the first half of the 1800s, the focus of production had a paradigm shift. In with the industrial age came the birth of a new world view that went from looking at feeding the people to one of fuelling the machines, so that they could, in turn create economic abundance. In the short and medium terms economies of scale could far outdo the existing natural order. This in turn created a new need—the accumulation of reserves in all their forms. For machines, unlike nature, had an overhead cost to the humans that owned them, and profit was the best compensation. Quite clearly, humanity went from its traditional worshipping at Nature's shrine to bowing down before Mammon's.

The key moment in this transition came from what was called the science of development:

> It was a science of gigantic proportions that sought to end mass poverty, which was thought to be the standard of living of three quarters of humanity. To do this it wanted to systemize universal laws of progress, supposed to be the base of the minority of countries which had developed in the pre war years. (Peemans, 2002, p. 7)

But it wasn't until World War II that the real collective consciousness began to take place in the form of development. In Goffaux's description of this in his book, *Problèmes de développement: Quêtes de chimères, voies de lucidité*, he claims that there had to be the conjunction of two crucial factors: 1) the birth of an economy of abundance in certain regions of the world; and 2) the consciousness, in other parts of the world of this new situation (1986, p. 32).

I would also argue that the modern concept of efficiency was yet another factor that this author has overlooked. For abundance was just a by-product of efficient systems of manufacture. Efficiency as such became a world view and rhetoric of modernity, particularly for the new hegemony.

The meeting of the world's peoples was not a one-step process. Goffaux describes it as happening over four main time periods: 1) colonization; 2) world conflicts, principally WWI and WWII, 3) the postwar, and finally 4) in the age of information. For the purposes of this thesis we will examine World War II. Simply, of the four time periods, this was the crossroads to impulse the collective change of consciousness *en masse* and coincides with the birthplace of the modern concept of development.

The importance of the WWII timeframe stems from the encounter of the other through the military campaigns that ravished much of the land that was previously bilaterally unknown. In these remote locations throughout the planet, the local and invading forces were introduced to both the bellicose and non-bellicose elements of the encounter—the latter were privy to the impressive feats of civil engineering and high-end medical and food technology that were the daily bread of troops stationed abroad, and the former could see their counterparts' state of relative poverty.

Thus, in this instance of war some of the world's most technologically advanced people encountered the world's most technologically disenfranchised. And the two were able to take stock of the inequalities of their lives, particularly in the aspects of abundance, efficiency and thus relative richness and poverty. These elements, although not immediately accepted by the either of the parties would change forever the combined consciousness on both sides. The collective change centered on a nuance in one key concept—in the eyes of both the other and even more crucially, themselves, the non-industrial countries transformed from their traditional historical role of *non-development* to the modern condition of *underdevelopment*, and that slight change would make all the difference. For this new consciousness of a state of underdevelopment meant that there was something to aspire to, or perhaps more adequately, as we will see in the next subsection of this chapter, something to *progress* to, and that had huge political ramifications.

This was exactly the reason for which the gathering that opens this chapter took place in Bretton Woods. Roosevelt's intention was to institutionalize this "happiness," or development, as the Brazilian delegate had stipulated in his Resolution of Thanks. Due to a converging of governments, technologies and worldwide infrastructures at the time where nation states had reached their most fragile point, the invitees at Bretton Woods agreed that the postwar approach would take place on a supranational level. The US government had made it clear through Roosevelt's "Good Neighbour" policy that economic health of every country is a proper matter of concern of all its neighbours, near and far.

Under these auspices, economic convergence was the way for the underdeveloped to catch up to the developed. The next step was to find a way for these two realities to converge. And Bretton Woods also brought forth the pragmatic answer, the World Bank and the IMF. These two institutions would put forward a particular form of convergence, perhaps best encapsulated under the newly developed science of economics. By the middle of 1940s, there was a clear consensus amongst world leaders that favoured what would be called the Classical Theory. This economic hypothesis is often attributed to the US economist, Walter Whitman Rostow, who held in the late 1940s the prestigious post of Harmsworth Professor of American History at Oxford University.

3.2 The Theory of Development and the Ideal of Universality: Rostow's Stages of Growth

The crucial Yalta and Potsdam conferences near the end of WWII set out to redesign the order of things and people through politics and policy in 1945. By then the twin institutions of Bretton Woods were coming into their own. It was clear to Walt Rostow, one of the primogenitors of the concept of development and the man who was about to become the Assistant to the Executive Secretary of the Economic Commission for Europe during the implementation of the Marshall Plan, like those who had attended the conference in Bretton Woods, that it was the duty of the capitalist countries to help Third World nations grow economically. Rostow's theory that he had been working on in the immediate postwar in the field and during his tenure in Oxford and

MIT between 1949 and 1958, was outlined in his seminal 1959 text, "The Stages of Growth: a Non-Communist Manifesto."[102]

His academic writing mirrored what Comte had said a century earlier—that there was in fact a linear set of steps that were historically proved to create human progress.[103] He stipulated that if all the countries of the world would replicate the techno-scientifically driven economic model of Western Europe and the United States, then they would grow rich like the West and thus the standard of living for all would be improved and with that, they would eliminate poverty and therefore engage the possibility of creating a more equitable world.

All these countries had to do was follow a simple five-step sequence to modernization. Rostow laid it all out claiming that it was possible to "identify all societies, in their economic dimensions, as lying within one of five categories: 1) the traditional society; 2) the preconditions *for* take-off; 3) the take-off; 4) the drive to maturity; and finally, 5) the age of high mass-consumption" (1959, p. 10).

To make these distinctions, Rostow defined, on the underdeveloped side of the spectrum, "traditional societies" as those with a "pre-Newtonian" concept of science and technology, as well as having "pre-Newtonian attitudes to the physical world" (1959, p. 10). To move towards growth, the traditional society must enable "the preconditions for take-off." Here he suggested that the underdeveloped must include some modern mega-technologies and scientific infrastructures like power plants, railroads and ports into the existing social climate. Beneficial side effects of this included improved Gross National Product which in turn would mean more foreign currency (of which the only globally valuable one was the US dollar) and thus better education for the local peoples (implied in this was that the schools would be state run and necessarily support this rationality in their teachings), the creation of a pool of entrepreneurial elite and the mobilization of capital, particularly by foreign banks and other money-lending institutions.

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[102] I am quoting from the text reprinted in Seligson & Passé-Smith (2002).

[103] The history of positivism and progress is a fascinating story. I have chosen not to re-enter the discussion beyond this point as it has been well discussed elsewhere. For those interested in pursuing more information on the subject, please turn to Bury (1921). Hardt & Negri (2000) also cover the history of positivism and capitalism masterfully.

Immediately, then, universal progress meant incorporating technology—massive structural and infrastructural imports—created and administered by an emergent technocracy which was developing in the industrialized world. The import of these systems of technology would have geographical and social effects. To begin with, the transformation to advanced industrial society meant prodding farmers out of their historic environments and reinstalling them into the city centers, places where modern rationality ruled. The thinking was that with the physical and emotional distance from the traditional societies found in rural areas, the new breed of modern workers with their offspring learning the new rationality in their schools would now hold close the new commodities of technological rationality: entrepreneurship, material wealth and efficiency.[104]

According to Rostow, the third step, "take-off," was "the great watershed of modern societies" (1959, p. 12). Building off of the first and second stages, this is where the machinery of growth would take root and hold steady with a rate of effective investment and savings that would rise from five to ten percent of the national income. An agricultural revolution must take place as the needs of the country depend on a greater production than ever before. Rostow claimed that at this point agriculture would become commercialized and that "increasing numbers of farmers are prepared to accept the new methods and deep changes they bring to ways of life" (1959, p. 13).[105] Within a decade or two, according to Rostow's theory, the economy and the "social and political structure of the society is transformed in such a way that a steady rate of growth can be thereafter sustained" (1959, p. 13).

Rostow's fourth step, which he termed "the drive to maturity" follows a long interval of sustained progress. Here the technologies absorbed by the system are based on higher-end processing production, enabling the creation and saleability of items of greater complexity and price. This is where the "economy demonstrates the capacity to move beyond the original

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[104] The idea of a technical society replacing a traditional one was discussed with the earlier graph on Huxley's *Brave New World*. Rostow's theory turned this theory to action. Today economists still push for urbanization. For a text specifically on the subject, please see, Schumacher (1973).

[105] As development was about generating profits, not generating enough to subsist, agriculture took on the form of the Green Revolution. For more of how this technology affected farming society and the case of Mexico, please turn to the fascinating research of Hewitt de Alcantara (1976).

industries that powered its take-off and to absorb and to apply efficiently over a very wide range of its resources—if not the whole range—the most advanced fruits of (then) modern technology" (1959, p. 14).

Finally, at the bright end of the growth tunnel, Rostow heralded the advent of "the age of high mass consumption" where the leading sectors shift towards "durable goods and services." Like Adam Smith's model, this production had to be complemented by consumer spending and arbitrated by the invisible hand. The marketing of the cheap mass automobile was the benchmark of this revolution for the American economist, as it provided "quite revolutionary effects—social as well as economic—on the life and expectations of society" (1959, p. 15).

Development, as Rostow and the West saw it, was a science of progress. It was the best way of conceptualizing modernization in the time when it was estimated that three quarters of the world's population was living in poverty. It was sold as a means of systemizing the universal laws of betterment—those used by the most advanced countries in the world—and exported as a recipe to all countries that lacked this lifestyle, for it foretold that by following this paradigm, everyone would eventually be rich. And for the moment, this idea of universal prosperity hit a resonant chord in the public arena as well as amongst the elites who would impose this vision from Ivy Towers and government posts. This was the generation that had lived through two world wars and the Great Depression and nobody wanted to go back there.

Philosophically speaking, Rostow's lasting convergence paradigm of development is based on many founding ideas. According to social researcher Jean-Philippe Peemans the most important is that progress is the universal base of development and its use depends on the realization of "the "order of things" capable of assuring prosperity, harmony, well being, and the happiness of the "people." Development was promoted as the centerpiece of the construction of the order of things" (Peemans, 2002, p. 10)—one based on massive technology transfers from the North to the South along with information systems and the subsequent accumulation of material wealth by entrepreneurs.[106]

[106] For a very thorough work on the concept of development, look at Peemans (2002). The translation to English is mine.

Rostow's development was thus based directly on the shoulders of Adam Smith's proposal, which denoted the concept of a specialized world, the division of work, and exchange as the bases of society. To pragmatic Anglo economists at the break of the Cold War, the opening of foreign markets to international commerce was the portal to the route of "progress." On this note they hailed industrialization as the basis for this newfound wealth. And in this new order of things, the newly found science of economics[107] was its messiah, and it was based on precisely the model of the self-styled liberal, market-driven democracy of its host country, the United States of America.

Thus, in effect, by taking a Marcusian analytical approach one could say that "development" was nothing more than the operational concept of the universal theory of economic progress. While efficiency has always been the key to successful economics, the war had shown the power of this efficiency and centralized management when based on a technological infrastructure.[108] This had ramifications in capitalist society where production and consumption could grow exponentially given this model and produce GNP. World leaders bought in and decided to create an efficient supranational system to instate their universal growth projections. And thus the IMF and IRBD were born lavishly before the end of the war in a spectacular luxury hotel at the foot of the Presidential Range in Bretton Woods, New Hampshire.

3.3 The Reality of Universalization: The Creation of the International Bank for Reconstruction and Development (IRBD)—a.k.a. the World Bank

Though the war was still far from over, the idea of universal prosperity through economic prosperity had formed and reached consensus amongst the Allied leaders, particularly through the slightly differing visions of English economist, Lord John Maynard Keynes and the US Secretary of the Treasury, Henry Morgenthau. The Allies had to agree on a plan for its implementation. To do so, President Roosevelt invited dignitaries of forty-four Allied countries to

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[107] Bury (1921) traces the history of Economics as the "hardest" of the "soft" sciences due to its use of mathematical predisposition.
[108] This discussion has been studied by many critics and is covered in chapter one of this thesis. Turn to Hughes (1985), (1998) and Winner (1985) for more.

attend the United Nations Monetary and Financial Conference at the Mount Washington Hotel in Bretton Woods, New Hampshire, only two weeks after D-Day took place.

The conference was to put forward two new institutions which came out the 138-page text that Morgenthau's assistant, John Dexter White had penned two years prior. In this *Proposal for a United and Associated Nations Stabilization Fund and a Bank for the Reconstruction and Development of the United and Associated Nations*, White outlined what the Treasury was touting as the "New Deal in international economics." The Stabilization Fund and the Development Bank were precursors for what would become the IMF and the World Bank.

In his opening speech, Morgenthau set the goal for the modern concept of development as the "creation of a dynamic world economy in which the peoples of every nation will be able to realize their potentialities in peace... and enjoy, increasingly the fruits of material progress on an earth *infinitely* blessed with natural riches" (emphasis added, USDS, 1944, pp. 79-83).[109] He argued that "this is the indispensable cornerstone of freedom and security. All else must be built upon this. For freedom of opportunity is the foundation for all other freedoms..." Morgenthau continued, stating that the conference must accept an important "elementary economic axiom... that prosperity has no fixed limits. It is not a finite substance to be diminished by division" (USDS, 1944, pp. 79-83).

White's counterpart, Lord Keynes, also remarked that the role of development was "to promote a policy of expansion of the world's economy.... By expansion we should mean the increase of resources and production in real terms, in physical quantity, accompanied by a corresponding increase in purchasing power" (USDS, 1944, pp. 79-83).

The economists were no doubt contextualizing their present by taking into consideration the economic crash of 1929 and the two world wars of the first half of the century, elements that had left a heavy impression on all those living. "If we can so continue," Keynes stated in his

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[109] Ironically it would be well to mention that while the 1987 Brundtland report takes a sobering look at what Morgenthau thought was infinite natural resources, the title of the WCED document comes straight out his concluding remarks, where the Secretary of the Treasury states "The opportunity before us has been bought with blood. Let us meet it with faith in one another, with faith in *our common future*, which these men [the soldiers of the United Nations] fought to make free."

concluding remarks, "this nightmare, in which most of us here present have spent too much of our lives, will be over. The brotherhood of man will have become more than a phrase" (USDS, 1944, p. 1110).

Thus, the Anglo economists concluded on what would be the working concept of development and that economic prosperity was the best way out of the historic impasse. They posited that only through a planetary-wide economic growth could the world's citizens obtain peace, freedom and security. The IMF and the World Bank, the twin towers of the proposal put forward by the host country at this historic meeting, would be just the institutions to make this possible. In real terms this universal plan meant the IMF was to take charge of fair trade, and the IRBD, which would soon be renamed as the World Bank, international development and to a very limited extent reconstruction.

At the time of Bretton Woods, there was little contestation to convergence theory or to the World Bank and IMF. In fact even the English delegation whose delegation and intellectual contribution to the forum was sizeable realized that they were incapable of questioning it. Economist Sir Roy F. Harrod, a close personal friend and official biographer of Sir John M. Keynes, comments on the situation, "In regard to international investment, it was agreed that the British ought not to take an initiative, on the ground that they would not be in a position in the period immediately following the war to contribute substantial sums to it. It was for the Americans to take the initiative in this part of the field" (cited in Harrod, 1951, p. 533). In fact, of the 44 countries present at Bretton Woods, 28 would sign the Articles of Agreement by the following December. By 1947 there would be 44 signed members.

Not surprisingly, the Soviet Union would not to ratify the charter. It would take several years before the first public refutation of the institutions would take place. They came in the form of a Soviet representative who spoke at a meeting of the General Assembly of the United Nations in 1947 charging that the Bretton Woods institutions were merely "branches of Wall Street" and that the Bank was "subordinated to political purposes which make it the instrument of one great power" (cited in Knorr, 1948, pp. 35-36).

And perhaps there was more than a smidgeon of truth to his statement. Since the Bank established as an institution that had to borrow to lend during the war when the only convertible currency was the US dollar, it immediately opened with a US rnonopoly. Moreover, even though the World Bank was conceived as a democratically controlled entity, in reality the USA held 37 percent of the voting shares, and the next in line, the UK, owned another 17 percent, thus giving the Anglos immediate majority rule.[110] Furthermore, it was soon after decided that the President of the USA would hand pick the Bank President, a tradition that carries over to today.

Historian of the times, Richard Gardner put it quite clearly when he stated, "the political and economic circumstances of the transition period made it virtually inevitable that the American viewpoint should finally prevail" (1980, p. 267).

This Anglo-centrism would affect the political and philosophical direction of the institute in the immediate postwar and onward until today. Anglo kudos were given to the powerful central planning and Big-Science technology which not had only had enabled the huge production, distribution and concentration of troops and machinery in the fields of war, but could also destroy masses of people and infrastructure at the push of a button—this was, of course, during the birth of the nuclear age. Not surprisingly, then, the World Bank would thus fuse these two tenets of modernity—central planning and massive technology transfer—and mobilize them for the renewal of the economy during the postwar times.

The threat of communism during Cold War would bring yet another crucial aspect to development, and that was the creation of buffer states and a justification for a huge military infrastructure against the perceived danger. Thus with the end of the war, and the beginning of the nuclear age, the need to export this pragmatic positivistic philosophy along with its technocratic structure was born in the industrialized nations involved in the United Nations, particularly the United States.

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[110] At the time of the second annual report (August 10 1947) The United States cast 37.20 percent of the vote. Over the past fifty years with the addition of numerous other members and capital subscriptions the US's share still remains proportionately high, holding onto slightly less than 25 percent; however, despite the look of democracy, its ability to control the vote via pressuring countries has been described in detail by Perkins (2004).

3.4 Development and Economic Morality in the Postwar

The wartime model of centralized planning of huge networks of vertically interconnected institutions and people that is *legitimated*[111] by scientific expertise rather than tradition, law or will of the people—what Feenberg and I refer to as technocracy—became a powerful metaphor in postwar planning and in particular for the World Bank.[112] Efficiency was exalted for winning the war, and it did more than that; it changed the way wars were fought. World War II was novel in the sense that there was a blurring in the continuum of soldiers and civilians like no other war before it. Whole communities and cities were mobilized through electrical infrastructures along with heightened physical infrastructures, like highways, railways and port systems. Weapons could be made by those who had stayed at home, shipped across continents and rushed to soldiers who were an ocean away at the front. The power of these infrastructures impelled Franklin D. Roosevelt, President of the United States of America to turn to science and technology as a postwar plan on a national level, and then as an international solution part of his "Good Neighbour" policy.

His first move came in turning to his top science advisor, Dr. Vannevar Bush, the then director the Office of Scientific Research and Development, the scientific agency which controlled the Manhattan Project, just months after the meeting at Bretton Woods. Roosevelt implored Bush to keep up the good work, stating in a November 17, 1944 letter to the scientist:

> The Office of Scientific Research and Development, of which you are the Director, represents a unique experiment of team-work and cooperation in coordinating scientific research and in applying existing scientific knowledge to the solution of the technical problems paramount in war. Its work has been conducted in the utmost secrecy and carried on without public recognition of any kind; but its tangible results

[111] To what extent the technocratic administration actually is scientific is another discussion I will leave for others. See, for instance Jørgensen & Karnøe (1996).
[112] For a complete discussion on this, please turn to Hughes' (1998) study of the management of four giant technological projects of the post-World War II era.

can be found in the communiqués coming in from the battlefronts all over the world. Some day the full story of its achievements can be told.

There is, however, no reason why the lessons to be found in this experiment cannot be profitably employed in times of peace. The information, the techniques, and the research experience developed by the Office of Scientific Research and Development and by the thousands of scientists in the universities and in private industry, should be used in the days of peace ahead for the improvement of the national health, the creation of new enterprises bringing new jobs, and the betterment of the national standard of living. (Cited in National Science Foundation (NSF), no date, ¶ 1-2)

This letter would be the beginning point of the seamless peacetime relationship between modern science and the US government. It exposed the reason for the mutual necessity—political power. Dr. Bush wasted little time to respond to the President's message, and by July of the next year, he had written the now classic report to the President entitled *Science: The Endless Frontier*[113] which proposed the creation of what would in 1950 become known as the National Science Foundation (NSF) and would extend an effort to cement the ties between the government, the military and science which had been forged during the war.

The wartime rhetoric was still useful after August 1945. Leaders of the United States of the America, who at the end of World War II found themselves simultaneously the strongman of the Allies and the enemy of communism, were taking charge of a brand new world. To begin with, Europe was destroyed. The United States' wartime allies in the Soviet Union had suffered more than any other country on Earth with some 26 million dead, yet were promoting communism to the war-ravished countries in their backyard and around the globe. A race for these possessions was set in motion.

For development was not only about the United States, whose powerful war machine had created what was to be hailed as a world of abundance, and was, in comparison, barely affected by the war. Industrialized mass production was creating the output of huge quantities of all kinds

[113] The entire document can be found at NSF (no date).

of material goods, which accounted for half of the world's economic production and the only internationally viable currency. In modernity at the nation-state level, thinking "big" was the inevitable spin-off of the result of the war effort. Science and politics grew together, each needing the other to help justify its power position.

Aside from the Vannevar Report, perhaps the best example of techno-scientific rationality as being the leading rationality of the postwar period can be found in the World Bank. In the Bank's Articles of Agreement, which were effective upon the signature of twenty-eight governments at a December 27, 1945 meeting in Washington, the World Bank was able to emerge as an autonomous and supranational force that would radicalize power structures throughout the globe.

Despite its initial struggles as a credible institution, the Bank was able to negotiate a powerfully autonomous group of Articles of Agreement which gave it free reign over its global operations, despite being set up as part of the United Nations—the pre-eminent institution of the postwar global order. This can be seen in the Bank's Article IV, section 10, which states:

> The Bank and its officers shall not interfere in the political affairs of any member; nor shall they be influenced in their decisions by the political character of the member or members concerned. Only economic considerations shall be relevant to their decisions, and these considerations shall be weighed impartially to achieve the purposes [of the Bank] stated in Article 1. (World Bank, no date)[114]

This is to say, that the only rationality they will use in their operations is economic, regardless of whom they decide to lend money to.

Article V, section 3 would enable an American monopoly on the decisions being made by the Bank. Using a thinly veiled attempt at democratic control, it stated that "(a) each member shall have two hundred and fifty votes plus one additional vote for each share of the stock held," and "(b) except as otherwise specifically provided, all matters before the Bank shall be decided by a majority of the votes cast" (World Bank, no date).

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[114] Please turn to World Bank (no date) or Mason & Asher (1973) Appendix A for the entire list of their Articles of Agreement.

Once clearly in US control, Bank leaders made the choice of staff likewise entirely up to the President, showing the political nature of a technocratic body like the United Nations. Priority was given to technologic competence as can be seen in Article V, section 5 (d): "In appointing the officers and staff the President shall, subject to the paramount importance of securing the highest standards of efficiency and of technical competence, pay due regards to the importance of recruiting on as wide a geographical basis as possible."[115]

And as the United States had total control of the Bank, it would come as no surprise that Article V, section 9 provided the basis for the World Bank's continuous location in the USA, stating, "the principal office of the Bank shall be located in the territory of the member holding the greatest number of shares." This section also authorizes the Bank to "establish agencies or branch home offices in the territories of any member of the Bank" (World Bank, no date). However, this path was never taken. The central office was opened in Washington, against Keynes' will, who stated that the World Bank and IMF to be kept clear of the "politics of Congress and nationalistic whispering gallery of the Embassies and Legations" (actually, they did open an office in New York, which was primarily due to the proximity to Wall Street, and another branch of considerably less importance was opened in Paris) (Gardner, 1980, p. 258). With the president's general autonomy, it is not surprising that the Bank today remains a highly centralized technocracy as was likely, given the stipulations under Article V.[116]

Yet banking autonomy would still grow. During the first couple of years it never did sign with the United Nations. In fact neither did it sign with any lenders, as it wasn't until March 25, 1948 when it finally made its first development disbursement in the form of two project-based

[115] The question of geography opens up an interesting debate, particularly in post-modernity studies. Many, like Baumann (1998), Feenberg (1999), and Hardt and Negri (2000) would argue that the post modern sphere is one where we are nearing the end of geography, at least the wealthy. This is to say it geographical boundaries no longer offer us diversity as they once were thought to.

[116] Ayres, while following the growth rate of the professional staff at the Bank—from 767 in 1968 to 2552 in 1981 (the entire work force of the bank increased to 5,200 at the time, and in 2006 numbered over 10,000)—states the evolution in simple terms: "The World Bank, while becoming by far the world's largest official lender for the development of low-income countries, also became a bureaucracy" (1983, p. 4) or in Feenberg and my words, a technocracy.

loans in Chile—as a precursor to their megaproject-based loaning.[117] The World Bank's role in Reconstruction quickly reduced to nothing, as the Marshall Plan created its own bank, and there was no room for competition here.

Despite its early almost complete failure as a lending source during its early years, the Bank was able to negotiate an agreement with the UN that permitted the poorly functioning institution to withhold information which the Bank staff not only judged confidential, but also of information "which would otherwise interfere with the orderly conduct of its operations" (World Bank, no date). In addition the UN recognized that the action to be taken by the Bank on any loan "is a matter to be determined by the independent exercise of the Bank's own judgment" and that it would be "sound policy to refrain from making recommendations to the Bank with respect to particular loans or conditions of financing by the Bank" (Mason & Asher, 1973, p. 58).

3.5 From Development Decade to Lost Decade: The Bank Starts Loaning

As we have seen, the concept of development used in the immediate postwar came to mean that all countries except for the United States were quite simply not developed. The once-urbanized nations of the north were destroyed by war and their colonial possessions were still comparatively lagging behind economically. When the war ended, the modern nations of Europe and Japan were hurriedly being moulded in the image of the American superpower as they took on massive infrastructural changes under a modernist technologic framework.

At the same time, the countries of the south were fending for their own interests in a completely different way. While in many cases untouched by the ravages of battle, they found that the war had created a vacuum of power as many imperial countries had been severely weakened economically and militarily from the conflict. Much of the south saw this and took

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[117] Prior to lending Chile $13.5 million for hydro-electrical equipment to Fomento and $2.5 to Endesa for the construction of expensive and highly technical agricultural equipment for monocropping, the Bank had only lent for reconstruction. It is important to note that since the very beginning, the kind of megaprojects that the Bank sponsored were highly technoscientific, and therefore required the creation of a technocratic elite to not only conceive but to also implement and run these projects autonomously. For more information check Mason & Asher (1973) pp. 53 and 813.

advantage of the loss of control of their European colonial masters and began fighting for their independence.

But perhaps the most salient factor to arise after the nuclear attacks on the Japanese in Hiroshima and Nagasaki was that there would be no *single* world hegemony as was supposed by the leaders of Bretton Woods in 1944. Despite the similarities of the technological outlooks both East and West pondered, the postwar dilemma posited two different kinds of industrial potencies: communism and capitalism. As we have seen earlier, the Soviet Union would not sign the World Bank's Articles of Agreement considering the institution merely a branch of Wall Street, and the Cold War began heating up.

The importance of this political break had important ramifications on the entire future of the planet, including the countries that remained in the worst state of relative under-development at the time. Due to the innate poverty and inequality in these states Allied administrators quite rightly saw that they were just as likely to embrace Soviet communism as they were western capitalism. A race for these territories began in earnest. However, despite their philosophical differences, the two sides shared a common ground for the solution of the problem of poverty: a positivistic rhetoric on the twin issues of technology and science—resulting in technocracy.[118]

To treat the issue, on March 12, 1947 President Truman began what was later called the Truman Doctrine, telling a joint session of Congress:

> I believe that it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or outside pressures.... If we falter in our leadership, we may endanger the peace of the world—and we will surely endanger the welfare of our own nation. (Cited in Avalon, no date, ¶ 35)

[118] As we have seen, Marcuse spent considerable time showing how both the communist and capitalist systems of the postwar converged on this point. To reiterate, he states:
The fateful interdependence of the only two "sovereign" social systems in the contemporary world is expressive of the fact that the conflict between progress and politics, between man and his masters has become total. When capitalism meets the challenge of communism, it meets its own capabilities: spectacular development of all productive forces after the subordination of the private interest in profitability which arrest such development. When communism meets the challenge of capitalism it too meets its own capabilities: spectacular comforts, liberties, and alleviation of the burden of life. Both systems have these capabilities distorted beyond recognition and, in both cases, the reason is the last analysis the same—the struggle against a form of life which would dissolve the basis for domination. (1964, p. 55)

He also specified the way in which the US would help what he coined were "underdeveloped" countries, when he stated, that the US would make "our scientific advances and technical know-how available for the improvement and growth of underdeveloped areas." Truman's so-called "Point Four" meant that technical missionaries would be put to work, and it also meant that the supplies and equipment that were needed to put new techniques into effect would be prioritized.[119] This would spell the beginning of the export of a scientific, technocracy that would pervade over the rest of the planet by the early 1980s much like what we have seen earlier with the Vannevar Report in the USA.

While the Truman Doctrine initially was explicit in its support of the people of Greece and Turkey who were fighting a civil war that was being won by the communist sector, it quickly spread to all "developing" countries on the planet. It is worthwhile at this point to briefly visit Sachs (1995) who notes that Truman's speech not only created the concept of underdevelopment, it also attached a positive meaning to America's political institutions, which were built on "scientific advances and industrial progress." With that, the promised state of development could be achieved through the implementation of huge techno-scientific projects which would, in theory, enable widespread material prosperity.

As we will see in the next subsection, the simple logic of the US economists under Rostow was that through the generation of material richness, one's quality of life could be improved. It was based on the idea that countries that have greater wealth, particularly the United States, and to a large extent the modernized countries of Western Europe, have the lowest amount of poverty and thus the best standard of living. By following the recipe of development, all countries could enjoy such a lifestyle.

Development was thus a pragmatic, technologically operational philosophy based on the sciences (in particular economics) and was exported firstly by the war-ravished allies in Europe, and then the underdeveloped "South." Due to its characteristic of being a practice as well as a philosophy, as developing countries embraced it, the philosophy whittled down to a simplified

[119] This comes from what is known as Truman's Fourth Point. For the full text, please turn to Truman (1947b).

intellectual currency the leaders and businessmen of culturally diverse countries around the globe could mutually agree upon—material wealth. So, in essence, development was exported as not much more than the emulation of the stages and icons of success that the west held so dear—positivist science and the collection of material wealth in all its forms. As we have seen earlier, the universal idea of development had been operationalized as profit.

As we have also seen, the institution *par excellence* of development was the World Bank. It began with the signing of 28 countries and has grown steadily to its present size at 189 nation-members (2006). With so many interests involved in development—and thus profit—the question this subsection prods is: what was development? To understand the question, this subsection will take a look at the overarching style of the institution, focusing on its major achievements and assertions for its first quarter-century of work.

With this as a background, this subsection of the chapter attempts to call attention to the operational features of the World Bank, as financier of the development cause. By this I suggest that we look at how and what the World Bank financed, and what were the subsequent results and trends of its lending of resources to the social spheres of the South.

3.5.1 The World Bank Opens for Business

As we have seen in the previous section, the Articles of Agreement had left the Bank fully autonomous in its priorities, funding and short-term, middle-term and long range planning. Article III section 1 states, "The resources and the facilities of the Bank shall be used exclusively for the benefit of members with equitable considerations to *projects* for development and *projects* for reconstruction alike" (emphasis is mine). Meanwhile, paragraph (b) of the same section specifies that the Bank "pay special regard to lightening the financial burden" for countries that have suffered "great devastation from enemy occupation or hostilities" (World Bank, no date).[120] In short this meant that the majority shareholders of the Bank would focus on their reconstruction. We will shortly see that, as the document states clearly, development funding for which the Bank was created would be sent in the form of technological mega-project-based financing.

[120] Check the World Bank (no date) official webpage for more information.

The recognition of the Bank's action on any loan would be a "matter to be determined by the independent exercise of the Bank's own judgment"[121] and this combined with the aforementioned "sound policy to refrain from making recommendations to the Bank with respect to particular loans or conditions of financing by the Bank" enabled the Bank to enjoy its privileged position both within and financially autonomous from the UN simultaneously.

But as finances in the postwar arena were hard to come by—remember, the US had the only internationally viable currency at the time—the World Bank went to the best place to get quick money. That, of course, was Wall Street.

So on July 15, 1947, the World Bank—the institution that would fund more than a half century of international development—went public. This was accomplished through the Bank's persuasive public relations campaign—it is worthwhile to note that at the end of the war the US public had tended strongly towards isolationism, and thus an impressive campaign was indeed necessary—combined with the work of more than 1,700 securities dealers. Together the two forces rallied in the sale of the Bank's pair of issues raising an unequalled $250 million in one day (these were made of $100 million issued in 2.25 percent, ten year bonds, and $150 million in 3 percent, twenty-five year bonds). By the end of the work day, E.F. Dunstan, the director of marketing for the Bank could announce that the offering was substantially oversubscribed and the bonds sold at a premium over the public offering price, all going straight to the coffers of the World Bank.[122]

Meanwhile, despite its lack of historicity, the IRBD was also able to garner gloating reviews from the US's bond rating services. They opened with A-ratings by Fitch Investors Service as well as Standard and Poor's Corporation, and by the mid 1950's they had securely paid off their creditors and were scored with a triple-As by all three of the nation's agencies, which included the all-important Moody's Investors Service, which had, until then, never before rated bonds from a financial institution.

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[121] For more information on this see chapter five of Mason & Asher (1973).
[122] For more information on these events please see chapter five of Mason & Asher (1973).

While huge amounts of money were being raised by the US public through the bond sell off, it was also becoming apparent to all of those involved, that the Bank would need profit to survive—they had just promised long-term rates up to three percent to their investors. To begin with, they put an 11 percent interest rate on each their disbursements to be able to pay off their investors and employees.[123]

With its success in the New York exchange, the Bank's primary function was to guarantee the private investments it had garnered from the wealthy American public.[124] With this operational logic in place, the lofty dream of development which we saw at the beginning of this chapter was brought down to earth and reduced to normative practice of profit for the mostly American stockholders of the corporation called the World Bank. The overwhelming Anglo majority vote within the Bank's board of directors would only reinforce that bias.

This was in keeping with what would become the World Bank's centralized internal structure. In the follow-up meeting to Bretton Woods in Savannah, Georgia, the members of the newly formed Bank were to decide where it would be located, the salaries and positions of its workers and president, as well as other important housekeeping issues.

In what was said to be an infuriating battle between Bank members over these issues with the US administration, British Lord Keynes who had fought in vain against the American's politicization of the Bank, which included huge salaries of its governors and president and its proximity to the influences in Washington, would suffer a heart attack (which his close friends felt was due to his heartbreak on the issues at stake) on the train from Savannah to Washington. Still bemoaning the results of Savannah, he would die months later from a second and final cardiac arrest.[125]

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[123] For more on the interest rates of loans, please see the *World Bank Annual Reports. This information comes from the* 1980 edition, p. 884.

[124] In the words of economist and historian Robert Oliver, they:
... gave the Bank the reputation for being more concerned with protecting the interests of their former clients in New York—purchasers and underwriter of the Bank's bonds—than with actively pursuing the development of their new clients—the less developed countries of the world. (Cited in Caufield, 1996, pp. 52-53)

[125] Both Keynes and Dexter White would suffer greatly in the immediate aftermath of he creation of the Bretton Woods Twins. Whittaker Chambers, the Communist spy-turned-informer accused the latter of working as an agent for the Russians and Chinese in the Treasury. Although

The Manchester Guardian's response to the meetings was similarly grim:

> The American Treasury, which in these matters seems at present to take the lead over the State Department, massed its voting powers and ran the conference in a rigidly domineering manner. Every proposal put forward by the American delegation was pressed through with steam-roller tactics, and the delegation seems to have made no secret of its belief that the United States, which pays the piper, has a right to call the tune. In fact, the worse fears of those who had always warned us that this was what the United States meant by international economic co-operation were borne out at Savannah. (Cited in Gardner, 1980, p. 267)

3.5.2 The Politics of Politics-Free Lending

Within its first summer of lending in 1947, the Bank would set a much-contended precedent of non-politicization of their loans. The issue was in Holland's oil-rich colonial territories in present-day Indonesia. Nationalist insurgents had claimed independence from their colonial masters; however, after receiving $195 million as part of a reconstruction package from the World Bank, on August 7, 1947,[126] Holland broke a U.N. cease-fire with a series of land and air attacks on the insurgents as well as launched an economic blockade of nationalist held areas.

Pundits accused the Bank of funding these actions. Yet the World Bank stuck to their guns—Article IV along with its full set of Articles of Agreement had been ratified by the UN—stating that it wasn't in their interest nor mandate to interfere with the political decisions of their governments. Development aid was purely economic investment.

The Bank was then granted even more freedom. In November 1947, the Bank signed an agreement with the United Nations giving its complete independence from the latter and its right

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acquitted by the grand jury, his career was ruined, and he died days after the hearing, like his English counterpart, of a heart attack.

[126] It was the Bank's second loan in history. For more information on the chronology of the World Bank loaning, check out World Bank (no date).

to withhold any information that it deems "confidential" or "would otherwise interfere with the orderly conduct of its operations"[127]—which is to say, just about all information.

With legislated secrecy, the Bank whose *raison d'être* was officially development and reconstruction transformed operationally into an international investment group of sorts which provided everything from the finances to the technological experts and the networks of the highly specialized hardware of development. How they would go about this was an entirely other question. Mason and Asher (1973) state:

> By virtue of its lending activity the Bank Group is in a position to exert a certain amount of influence on the development practices and policies of borrowing countries.... Because Bank Group lending increasingly has financed the capital expansion of a group of projects in key sectors of the economy, the Bank may be able to influence developmental policies affecting road and rail competition or the introduction of new agricultural practices. And if the Bank is a large and important provider of capital to a borrowing member country, the threat (or promise) to vary the level of lending may influence the formulation of policy at the national level. Obviously delicate questions of sovereignty and external intervention may arise. (1973, p. 6)

President Eugene Black of the World Bank coincided with the point, stating:

> We attach... a lot of conditions to our loans. I need hardly say that we would never get away with this if we did not bend every effort to render the language of economics as morally antiseptic as the language the weather forecaster uses in giving tomorrow's prediction. (Mason & Asher, 1973, p. 699)

He continued, showing the institutional bias towards technocracy, stating:

> We look on ourselves as technicians or artisans. Words like "savings" and "investment," "efficiency," and "productivity" are tools of our trade, and like good

[127] The agreement ratified the Bank's status as an UN-specialized agency, which was "independent" of the UN and therefore went against Article 64 and 70 of the United Nations Charter which gives ECOSOC the right to obtain regular reports from specialized agencies and allows for reciprocal representation at each deliberation. Bank historians Mason and Asher declare that this agreement was unsatisfactory to the UN secretariat. For more information on the subject, please refer to Mason & Asher (1973) p. 58.

artisans we try to develop proper standards for their use. (Mason & Asher, 1973, p. 699)

Let us now take a look at how the Bank's projects did affect its lenders. My aim here is not to level a value judgement for or against the Bank,[128] but rather examine its concrete proposals and discuss how they translated into the technocracy/democracy dialectic. To do so, I will be taking from four different authorities on the history of the World Bank. The first is Mason and Asher (1973) whose authorized history of the first quarter century of the World Bank is the go-to document in this field. I will also be taking from the critical histories of Caufield (1996) and Rich (1994) as well as Ayres (1983) who comes at the problematic from a centralist position, in an effort to provide an even perspective on the World Bank and its relationship with the technocracy/democracy debate.

Mason and Asher's work shows that the Bank was both determinative and reflective of current thinking about development. Their principal developmental goal was to expand national growth rate or Gross National Product (GNP), thus, the projects the Bank undertook to finance tended to be judged by their prospective contributions to this objective:

> The Bank recognized that investments of many kinds were needed for development but frequently implied that one kind was more essential than any other. The relative ease with which it could finance electric power, transportation, and economic infrastructure projects... made it an exponent of the thesis that public utility projects, accompanied by financial stability and the encouragement of private investment, could do more than almost anything else to trigger development. Projects to develop electric power and transport facilities were accordingly considered especially appropriate for Bank financing. At the same time the Bank was led to eschew certain fields traditionally open to

[128] There are plenty of authors who have gone to great lengths to critique the Bank's work, covering the whole political spectrum. While this is not my point, I will elaborate briefly on some of the arguments in the following footnotes as they indirectly concur with my thesis—that international development was in practice a form of exported technocracy.

public investment, even in the highly developed free-enterprise economies: namely, sanitation, education, and health facilities. Investments in these so-called "social overhead" fields were widely considered to be as fundamental to development as are investments in hydroelectric sites, railroads, highways, and "economic overhead" programs. The contribution of social overhead projects to increased production, however, is less measurable and direct than that of power plants, and they can be completed without large outlays of scarce foreign exchange. Financing them, moreover, might open the door to vastly increased demands for loans and raise heckles anew in Wall Street about the "soundness" of the Bank's management. It therefore seemed prudent to the management during the first postwar decade to consider as unsuitable in normal circumstances World Bank financing of projects for eliminating malaria, reducing illiteracy, building vocational schools, or establishing clinics. *The Bank became the leading proponent of the view that investment in transportation and communication facilities, port developments, power projects, and other public utilities was a precondition for the development of the rest of the economy.* (Emphasis is mine Mason & Asher, 1973, pp. 189-190)[129]

The World Bank's persistence in mega-project lending was clearly reflected in the Bank's sectoral lending allocations as we will shortly see. Between fiscal years 1961 and 1965, 76.8 percent of all Bank lending was for electric power or transportation. Only six percent went to agriculture.[130] And less than one percent went to social service investment (Mason & Asher, 1973, p. 833).

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[129] The lending bias was official rhetoric for the World Bank as can be see in their 1951 *World Development Report* which explicitly stated that "an adequate supply of power, communications and transport is a precondition for the ... industrialization and diversification of the underdeveloped countries" (cited in Caufield, 1996, p. 62).

[130] Most of the agricultural work that they did was in the form of providing local elites and landowners with expensive machinery for monoculture, as part of their Green Revolution technologies.

3.5.3 Mega-Project Loaning

"Consultantization is the next step after colonization"

Bangladeshi popular expression

The technocratic bias of the World Bank's development program was made explicit in its founding principles. In an attempt to provide an explanation of the phenomena of technocracy in the Bank's lending and institutional structure, I will be borrowing liberally in this section from authorized Bank historians Mason and Asher. I will be focussing on the aspects of technocracy via the following two points: 1) the Bank's explicit institutional drive for large technological projects; and subsequently, 2) the Bank's creation of a technocracy—a group of elites around the planet whose unifying element came via its implied relationship with science and technology.

As we have seen, the World Bank was created as a world wide institution for development. Their institutional bias to lending large sums of money to development of mega-infrastructure throughout nations of the so-called Third World was written into their Articles of Agreement. Article III section 3a stipulates that "the resources and facilities of the Bank shall be used exclusively for... projects..." (cited in Mason and Asher, 1973, p. 762). Section 4 specifies that the loans from the Bank must be guaranteed by the recipient nation, but the funding must go to private institutions.

> The Bank may guarantee, participate in, or make loans to any member or any political sub-division thereof and any business, industrial, and agricultural enterprise in the territories of a member... when the member in whose territories the project is located is not itself the borrower, the member or the central bank or some comparable agency of the member which is acceptable to the Bank, fully guarantees the principal and the payment of interest and other charges on the loan. (Cited in Mason & Asher, 1973, p. 762)

Through these two sections, the Bank virtually guaranteed the empowerment of a local elite. Mason and Asher explain:

> Under its Articles of Agreement, the Bank was expected to finance only those projective projects for which other financing was not available on reasonable terms. ...[T]he management concluded that private capital would be most readily available to the low-income countries for the development of export products, such as tin, rubber and petroleum... The Bank management was opposed to financing government-owned industries. This "conviction of the management" was based, according to Vice-President Garner, on three grounds. "We believed in private enterprise in those fields in which it could operate.... We felt that governments had so many things to do that were purely in their sphere that they shouldn't divert resources to other things, and ... most governments are incapable of running industrial enterprises effectively....
>
> Costly equipment from abroad, it was clear, would be required for electric power plants, transportation and communication systems....
>
> ... [T]he bank was set up to help complete specific productive projects rather than to make general purpose loans, to finance only the foreign exchange costs of the project, to secure a guarantee of repayment from the government of the country in which the project was to be located, and to finance only activities for which other financing was believed to be unavailable. These requirements, along with the practical necessity of concerning itself only with projects large enough to justify review and appraisal by a global agency with headquarters in Washington D.C., practically assured a heavy concentration by the Bank on power plants, railroad lines, highway networks, and similar physical facilities.... (1973, pp. 151-153)

In 1952, after only five years of developmental funding, the Bank underwent an important restructuring which promoted the Technical Operations Department (area-T.O.D.) to an elite status within the institution. From hereon forward, the Bank exposed an institutional initiative towards funding ventures in mega-project engineering.

The Bank's area-T.O.D. was divided into sub-units that specialized in power, transportation, industry, agriculture, and so on.[131] What this restructuring meant was that technical specialists were now empowered to fast track projects in their field. For example, a proposal for a nuclear power project, whether from India or Mexico or Iran, would be reviewed by the power group and an agricultural proposal by the agriculture group. This redirection of resources torn from its social, political and physical geography would become a major implication on how "development" as a term became operationalized as a project-based, profit-oriented activity.

Mason and Asher describe the attitude of the higher officials of the institution clearly. "Why mess around with program loans and hard-to-appraise types of projects if you are really best at financing electric power and transportation projects, and there are still plenty of power and transport projects to finance?" (1973, p. 78). The two historians also quote a well-respected executive director as saying:

> The real value of the Bank ... is that we have that wonderful staff; that we have these economists and engineers who check the projects, who guide the investment effort, the development effort, who have the procurement control, who have end-use control. (1973, p. 78)

[131] For a complete breakdown of Bank lending, please see Table E-4 on page 833 of Mason & Asher (1973).

Table 3.5.3.1 IBRD Loans Net as of June 30, 1971

Purpose	Total Bank, IDA and IFC*
Grand Total	19,953.10
Electric Power	5,284.00
Transportation	5,876.90
Telecommunications	575.2
Agriculture, forestry, and fishing	2,370.80
Industry	3,017.40
General development and industrial imports	1,318.40
Education	424.40
Population	9.80
Water supply and sewerage	328.70
Tourism	30.00
Post-war reconstruction	496.80
Project preparation and technical assistance	21.10
Financing Loan	200.00

The World Bank concentrated its money lending to major projects, in particular to electrical power, transportation and heavy industry.

Source: World Bank Group, *Profiles of Development* (September 1971 pp. 32-33) Taken from Mason & Asher pp. 828

*These three agencies represent what is considered the World Bank Group, which I have simplified as the World Bank for purposes of brevity in this text.
**In million of U.S. dollar equivalents

Table 3.5.3.2 IBRD Loans by Area and Purpose January 1961- June 1971

Purpose	Total Loans in Percent
Electric Power	**31.8**
Transportation	**31.9**
• Railroads	10.0
• Shipping	0
• Ports and Waterways	2.9
• Roads	18.3
• Airlines and Airports	0
• Pipelines	0.7
Telecommunications	**3.0**
Agriculture, forestry, and fishing	**10.6**
• Farm mechanization	0.1
• Irrigation and flood control	4.6
• Land clearance, farm improvement	0.4
• Crop processing and storage	0.2
• Livestock improvement	2.6
• Forestry and fishing	0.3
• Agricultural credit	1.7
• Smallholders and plantations	0.4
• Agricultural industries	0.1
• Agricultural research	0.1
Industry	**15.0**
• Iron and steel	0.3
• Pulp and paper	0.3
• Fertilizer and chemicals	0.3
• Other industries	0.8
• Mining and mining infrastructure	1.7
• Development finance	11.2
General development and industrial imports	**1.1**
Social Services	**4.7**
• Education	2.0
• Family planning	0.05
• Water systems	2.6
• Hotels and tourism	0.1
Reconstruction	**0**
Miscellaneous	**1.9**
• Technical assistance and project preparation	0.05
• Financing loan	1.9

The World Bank concentrated its money lending to major projects, in particular to electrical power, transportation and heavy industry and provided less than 5 percent to Social Services.

Source: World Bank Group, *Profiles of Development* (September 1971 pp. 32-33). Taken from Mason & Asher pp. 833-834

This kind of universalization of technological rationality throughout the development experiment made sense in the young days of the Bank. Early lending of the IBRD in developing

countries was overwhelmingly directed toward carefully appraised projects in capital infrastructure which had until then proven as money making enterprises that could repay Bank loans and their primarily US investors and at the same time raise the Gross National Product of the nation. Thus, the Bank learned to push forward such infrastructural options as railways, communication facilities, power plants, and sea- and air- port facilities due to their efficiency and predictability.

As Table 3.5.3.1 and 3.5.3.2 above show, the Bank nearly completely excluded proposals on social services, which added up to less than five percent of the total lent. Bank officials later confessed that they thought that lending extensively in the "social field" would produce an adverse reaction in the financial community.[132] Rather most of the Bank's financing went to major projects—with more than half going to fund mega-projects like electric power and transportation (railways, roads, ports, etc.).[133] Heavy industry came third, followed by agriculture for export. In fact, one could argue that just about all of the loaning went to major physical infrastructural change minus the little spent on education, tourism and population. Even agricultural loaning was centered on GNP production, transferring the role of an elite group of landowners into a technocracy through the supply of heavy machinery and supplies from the North:[134]

It could be argued that they [the agricultural credits sent to developing nations] served the interests mainly of large, well-to-do farmers and would tend to replace techniques of production that were decidedly more labour-intensive, thus creating undesirable employment effects.

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[132] This comes from Robert Cavanaugh's, *Oral History*, and is cited in Mason & Asher (1973, p. 63).

[133] In fact, in its annual report of 1951, the Bank made explicit its bias to mega-infrastructural projects, stating: "an adequate supply of power, communications and transportation facilities is a precondition for the ... industrialization and diversification of the underdeveloped countries" (cited in Caufield, p. 62). This concurs with Mason & Asher who state:
The relative ease with which it could finance electric power, transportation, and economic infrastructural projects made it an exponent of the thesis that public utility projects, accompanied by financial stability and the encouragement of private investment, could do more than just about anything to trigger development. (1973, p. 190)

[134] The bank admits that more than half of its rural loans supported large and medium sized farmers; however, this is an understatement, as the Bank considers a small farm as any plot less than 12 acres (5 hectares), which is often a mid-sized farmer in the developing world. In one particular loan to Guatemala, the Bank considered small farms as those with less than 112 acres—a category that includes 97 percent of the country's farmers. In two separate World Bank initiatives, the bank funded only farmers with more than 7.2 hectares, even though three-quarters of the nation's farmers held less land that that (Caufield, 1996, p. 107).

Although it was held in rebuttal that tractors could also serve the interests of small farmers through cooperatives and local credit arrangements, no firm program to bring this about was suggested....

In 1970 the Bank made loans to two Latin American countries for livestock development. In both cases an objection was raised in the board of directors that these loans were made to comparatively affluent farmers, while the vast majority of cultivators in these countries, who were certainly not affluent, were neglected. A director from Latin America, in response to this objection, said that he was surprised to see it suggested that the Bank should be concerned with redistributing income; he had understood that the purpose of the Bank was to promote economic development, in which case it was appropriate to finance those who were capable of assisting such development. (Mason & Asher, 1973, p. 477)[135]

Furthermore, as a promoter of the capitalist system, the lending patterns of the Bank went almost exclusively to support non-governmental projects, creating a techno-scientific elite that was protected by the government, yet outside of it, and not responsible to it, nor the people it represented. But this wasn't a charity. President McCloy, Black's predecessor had been clear about this. In speech after speech, he declared that the Bank would be good for American business, it would, "create markets for US trade... and stop Communism" (cited in Caufield, 1996, p. 53).

The lending pattern to technological elites coincides with what John Perkins, a former development consultant, describes as the job of said economic development experts in his book *Confessions of an Economic Hit Man* (EHM), stating:

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[135] The creation of a foreign technocracy through World Bank loans would create local pockets of technocratic power as can be seen in the case of the Bangladesh tube well project in 1970 when the Bank loaned $14 million for 3,000 deep tube wells. At the time 60 percent of Bangladeshi farmers owned less than one percent of the land. In theory the wells would provide irrigation for their land. Each tube well was to be tended by a local cooperative. However, as the Swedish government's International Development Authority soon found out, control of the tube wells went directly into the hands of the largest landowners. When US researchers Betsy Hartmann and James Boyce followed up the Swedish study, they found that the tube well soon turned into the private property of a local who could thereafter lease his land out to sharecroppers, whose rent he raised by some 50 percent, since, it was he who bought the well (through bribes). The foreign consultant on the project concurred, "I no longer ask who is getting the well. I know what the answer will be... Once hundred percent of these wells are going to the big boys" (cited in Caufield, 1996, pp. 114-115).

> Like our counterparts in the Mafia, EHMs provide favors. These take the form of loans to develop infrastructure—electric generating plants, highways, ports, airports, or industrial parks. A condition of such loans is that the engineering and construction companies from our own country must build all these projects. In essence, most of the money never leaves the United States; it is simply transferred from banking offices in Washington to engineering offices in New York, Houston, or San Francisco.
>
> Despite the fact that the money is returned almost immediately to corporations that are members of the corporatocracy (the creditor), the recipient country is required to pay it all back, principal plus interest. If an EHM is completely successful, the loans are so large that the debtor is forced to default on its payments after a few years. When this happens, then like the Mafia we demand our pound of flesh. This often includes one or more of the following: control over United Nations votes, the installation of military bases, or access to precious natural resources such as oil or the Panama Canal. Of course, the debtor still owes us the money—and another country is added to our global empire. (2004, p. xvii)

Perkin's states that his work was typical of those working in the development field. His objectives were two-fold:

> First, I was to justify huge international loans that would funnel money back to MAIN and other US companies (such as Bechtel, Halliburton, Stone & Webster, and Brown & Root) through massive engineering and construction projects. Second, I would work to bankrupt the countries that received those loans (after they had paid MAIN and the other US contractors, of course) so that they would be forever beholden to their creditors, and so they would present easy targets when we needed favors. (2004, p. 15)

The basis on which he could attain his goals was to produce studies that projected short to middle term economic growth and that evaluated the impacts of a variety of projects. As the studies had to be "scientific" Perkins discusses hiring a young MIT mathematician, Dr. Nadipuram Prasa into his department. Within six months he developed what was called the Markov method

for econometric modeling. Together the two presented a series of technical papers in various international academic forums that "proved" Markov "as a revolutionary method for forecasting the impact of infrastructural investment on economic development" (2004, p. 102).[136]

Perkins remarks on the achievement:

> It was exactly what we wanted: a tool that scientifically "proved" we were doing countries a favor by helping them incur debts they would never be able to pay off. In addition, only a highly skilled econometrician with lots of time and money could possibly comprehend the intricacies of Markov or question its conclusions. The papers were published by several prestigious organizations, and we formally presented them at conferences and universities in a number of countries. The papers—and we—became famous throughout the industry. (2004, p. 102)

Doug Hellinger, a former consultant with the Bank concurs:

> The Bank is saying that to join the world economy you have to become more efficient and you have to be able to compete against imports from around the world. But the purpose is not to develop Brazil or Ghana. They could give a damn. The US is trying to stay competitive with Europe and Japan and the Bank is helping to provide the government's friends in business with cheap labor, a deregulated atmosphere, and export incentives. It isn't a development strategy, it's a corporate strategy. (Cited in Caufield, 1996, p. 159)

The benefits for the EHMs, as Perkins calls them, as well as the companies for whom they work, has been widely documented. Catherine Caufield quotes a World Bank employee as stating: "Most of our money doesn't go to the South, it goes straight from Washington to Pennsylvania, where they manufacture the turbines, or Frankfurt, where they produce the dredging equipment" (1996, p. 242). Furthermore, the phenomenon has been well documented throughout World Bank's own reports as well. Member states gain almost exactly what they had already invested in. For example, as Caufield's research states, the 1995 *World Bank Report*

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[136] For examples of papers by John Perkins published in scientific journals, see: Perkins et al. (1973a, 1973b, 1974), Perkins & Nadipuram (1973), Vennard, Perkins, & Ender (1974).

shows that over the years, US companies alone have received over 24 billion dollars worth of business from the World Bank and its affiliates, exactly the amount that the US government has contributed to the system. Britain has done better, gaining 12 billion dollars worth of private contracts out of its 7 billion dollar investment, creating an atmosphere of cooperation between development interests and their governmental counterparts.[137]

The problem of the Bank's system of providing infrastructure to the emerging technocracy but incapacity to solve poverty was apparent as far back as 1973, when James P. Grant wrote his seminal paper. "Development: the End of Trickle Down?" in which the future Executive Director at UNICEF stated the failure of the system of basing development on the GNP with the hope that the poor will get their share:

> A major rethinking of development concepts is taking place, compelled by a single fact: the unparalleled economic growth rates achieved by most developed countries during the 1960's had little or no effect on the world's people, who continue to live in desperate poverty....
>
> Contrary to expectations, increased output of goods and services has failed to "trickle down" to the poorer half of populations. Those people most favored by the development process—including large landowners, civil servants, and skilled

[137] This data from this section is taken from chapter 14 of Caufield (1996). The relationship between government leaders and development companies has been a source of public interest for decades. The case of Vice President Dick Cheney's relationship to development giant, Halliburton is but the most recent of a string of such relations that Perkins lists in his *Confessions of an Economic Hitman*:

I now see that Robert McNamara's greatest and most sinister contribution to history was to jockey the World Bank into becoming an agent of global empire on a scale never-before witnessed. He also set a precedent. His ability to bridge the gaps between the primary components of the corporatocracy would be fine-tuned by his successors. For instance, George Schultz was secretary of the treasury and chairman of the Council on Economic Policy under Nixon, served as Bechtel president, and then became secretary of state under Reagan. Caspar Weinberger was a Bechtel vice president and general council, and later the secretary of defense under Reagan. Richard Helms was Johnson's CIA director and then became ambassador to Iran under Nixon. Richard Cheney served as secretary of defense under George H. W. Bush, as Halliburton president, and as U.S. vice president under George W. Bush. Even a president of the United States, George H. W. Bush, began as founder of Zapata Petroleum Corp, served as U.S. Ambassador to the UN under presidents Nixon and Ford, and was Ford's CIA director. (2004, p. 78)

industrial workers—have generally been able to prevent any large scale redistribution of income in favor of the poor majority. (1973, pp. 43-44)

The means with which the technocratic development strategy has supported its proponents can also be seen with the choice of the consultants themselves. The appendices of the 1995 *World Bank Report* show this quite clearly—more than 80 percent of the consultants hired for the Bank projects come from industrialized countries of the North, in particular, the United States, Britain and France—three of the top donors to development programs.

The state of affairs has not gone unnoticed by local populations. In 1992, in a reaction to a World Bank funded forestry project in Guinea where the foreign consultants controlled and directed the entire project, the local Association of Friends of Nature and the Environment (ASSOANE) wrote a letter to the World Bank complaining that, "a tiny portion of the salary of the expert is spent in the recipient country, the rest is transferred to banks in rich countries... while innocent people incur debt and interest obligations... Once can truly ask who is aiding whom" (ASSOANE, 1996, p. 4)?[138]

Korinna Horta of the Environmental Defense Fund (EDF) followed up on the complaint and concurred:

> The most visible of project results in the forest regions has been the construction of villas built to the specifications of the individual foreign experts in the small town of Seredou. The expert enclave, consisting of four distinctly European suburb-style houses, represents a striking contrast to the dilapidated building of the regional forest

[138] This has been the standard line of the Leftist critique of the Bank's work since its inception. Mason & Asher acknowledge the validity of the criticism in their authorized history of the World Bank, after 25 years of loaning, stating:
... one must in all fairness concede a measure of validity to the left-wing criticism. The way in which this ideology has been shaped conforms in significant degree to the interests and conventional wisdom of its principal stockholders. International competitive bidding, reluctance to accord preferences to local suppliers, emphasis on financing foreign exchange costs, insistence on a predominant use of foreign consultants, attitudes toward public sector industries, assertion of the right to approve project managers—all proclaim the Bank to be a Western capitalist institution. Such an institution can contribute to and, we believe, *has* contributed to the development of the less developed world. But increasingly the Bank has found itself in conflict with its less developed country member countries on the issues noted above and on others. Although it has to a certain extent adapted its policies and practices, this adaptation has been limited by the concern of those member countries that supply not only most of the capital but most of the management and senior technicians as well. (1973, pp 478-479)

administration, which has neither running water or electricity, and is just a short walk away. (EDF, 1992, p. 4)

Later on in the report, Horta notes that the Guinean forest department has six guards to monitor the 260,000 acre forest, the same number that the foreign experts hire to guard their houses.

The World Bank studies of Perkins, EDF, ASSOANE and Caufield bring us back to Hughes' work on *The Evolution of Large Technological Systems*. They show how scientific institutions are not disinterested truth-centered knowledge makers. Rather, they show how Big-Science—the Markov method as developed by Perkins and Prasad, the pragmatic, historical relationship between big business, development and national politics in the developed world—is necessarily centralized, and reinforces the trend to hierarchical managerial control for its proper operation and is in fact, autopoietic. Hughes' study exposes the authoritarian technological shaping of society, and the creation of what Hardt and Negri call "Empire."[139]

Practically speaking, these examples show how technology fights back and co-creates or constructs in the contemporary arena. In this sense it seeks to empower itself via the hegemony through technology. From Hughes' work, and these examples, we come again to the uneasy conclusion that centralized technical systems based on a scientific model have helped install and at the same time justify today's present international technocracy. As Marcuse stated, the "opposition hits the system from without and is therefore not deflected by the system; it is an elementary force which violates the rules of the game and in doing so, reveals it as a rigged game..." (1964, pp. 256-257).

This mirrors what David Price, the anthropologist who was hired by the World Bank to investigate the plight of the Nambiquara in Brazil's Polonoroeste project but soon found that the project lending had been approved before he had finished his work—despite the fact that the

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[139] Hardt and Negri's (2000) discussion of the new global order as emerging from the corporate ambit as being regulated by a sovereign power that is both autopoeitic in its nature and decentralized is worthwhile to visit in this instance, as it describes how the relationship amongst technocratic elites is self-reinforcing:
Along with the global market and global circuits of production has emerged a global order, a new logic and structure of rule —in short, a new form of sovereignty. Empire is the political subject that effectively regulates these global exchanges, the sovereign power that governs the world. (2000, p. xi)

Bank claimed that they would not proceed until after the anthropological study, concludes in his book *Before the Bulldozer: The Nambiquara Indians and The World Bank*:

> With a land area greater than the forty-eight contiguous American states and considerable wealth in mineral resources, Brazil has the potential to become a major world power. As long as Brazil spends virtually everything it earns to service its foreign debt, this will not happen. Who benefits from this ill wind? Everybody who wants to maintain the *status quo*. A policy that destroys Brazil's natural resources insures that Brazil will not have the opportunity, ever, to become a first-rate world power. And a policy that keeps Brazil massively in debt allows the creditor to pull the strings and control what goes on inside the country. The recent democratization of Brazil, after twenty years of military rule, may be an effect of economic domination. Perhaps now that the industrialized countries virtually own Brazil, they can allow Brazilians the illusion that they are running their own affairs. (1989, p. 180)

Price's thesis and the work of Caufield take us back to the conclusions we saw in "Do Artifacts Have Politics?" in the theoretical methodology of this thesis. By providing infrastructure that inherently empowers, in Winner's words, a techno-scientific military elite, the World Bank's projects embody specific forms of power and authority. The World Bank's export of large scale infrastructure belongs to this genre of technological politics, which requires its social environments to be structured in a hierarchical and anti-democratic way (1999, p. 33).

And in fact, as Mason and Asher (1973), Caufield (1996), Rich (1994) and Ayer (1983) all point out, there is a trend to support highly vertical governments that can maintain the economic direction asked of by the World Bank. Perhaps it is the official version that says it most clearly:

> The membership of the Bank embraces a wide spectrum of social structure and political organization, ranging from tribally oriented or militarily controlled governments, on the one hand, to those approximating democratic societies on the other. The IRBD has paid little attention to the political configuration of borrowing governments, provided they followed economic policies conducive to creditworthiness. Indeed it was strictly forbidden by the Articles of Agreement to do

so. A result has been that on more than one occasion the Bank has found itself reducing the level of lending to governments newly turned democratic because of unsatisfactory fiscal, monetary or foreign exchange policies or increasing the level of lending to militarily controlled governments with a capacity to enforce economic austerity. (Mason & Asher, 1973, p. 478)[140]

Perhaps the country that best exemplifies the disparity is India, the World Bank's largest loaner—with loans exceeding 47 billion dollars by the year 2000. According to Bruce Rich, the direct relation of these loans to sponsored development projects—in particular infrastructural ventures, like the $850-million Super Thermal Power Plant in Singrauli along with a huge open pit coal mine called Dudhichu—has enabled Indian officials to create "a nihilistic negation of nature and human kind." (1994, p. 40).[141]

Rich's investigation of the area shows the irony of the billions of dollars of investment in foreign aid for the locals. "The situation of many of the hundreds of thousands of the local inhabitants has degenerated from traditional poverty in what was a society based on subsistence agriculture thirty years ago to absolute destitution" (1994, p. 40). At present, the five thermal coal plants belch out some 1,650 pounds of mercury every year, making the land highly inhospitable for the people that live there:

As a result the crops and fish that the half million people in the Singrauli area consume are in many cases unfit for human consumption. The productivity of the land has been destroyed, the once drinkable groundwater is contaminated, and

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[140] There are two ways of arguing this point. As it is not my point to enter into the discussion, allow me to overview the two positions. The Left argues that Bank supported authoritarian regimes, while the Bank retort was that they were the only ones to support the poor *despite* the fact that they had a military dictator. The Bank eventually admits, however, that its lending system was flawed, perhaps most famously by Vice President Shavid Burki who stated that their efforts to minimize the ill effects of adjustment on the poor had not been successful. "We have failed" (cited in Caufield, 1996, p. 163).

[141] Mokorosi and van der Zaag's ask if local people can also gain from benefit sharing in water resources development. The UNESCO researchers reveal through their work several interesting conclusions that show the undemocratic nature of mega project work:
a) the political environment through the legal and institutional framework plays a major role in protecting or marginalising the affected people; b) compensation measures for lost properties left many affected people destitute and food insecure; c) affected people mainly benefited from the indirect benefits of the projects instead of direct benefits. (2007, p. 1322)

> 70,000 contract labourers now work in semi-slave conditions under corrupt labour contractors for 8-10 rupees (65-80 cents in the late 1980s) a day in the coal mines and construction sites. (Rich, 1994, p. 40)

The Singrauli debacle is not the only case where World Bank loaning has forced local communities out of their traditional lives and into modern work settings. Rich's work documents how Bank loans to India have "evicted more than 20 million poor from their lands and homes, mostly without compensation, since independence in 1947—[that is to say,] 2.5 percent of the current population" (1994, p. 25). In some ways it was the Sardar Sarovar dam project on the Narmada River Valley that finally brought world wide attention on the subject. Here, on Christmas Day, 1990 a protest march of 5,000 villagers threatened by Transmigration set off a powerful protest rally that made it all the way to the World Bank headquarters in Washington. This would in turn culminate in the landmark Morse Commission, the first-ever Independent Review Panel, which eventually forced the World Bank to pull out of the Narmada.[142]

Despite being its largest loaner, India is not the only country where the Bank's idea of transmigration became popular. Rich has also studied the effects of the loaning of $443.4 million to Brazil for the Northwest Region Development Program, known as Polonoroeste. Half of the money funded a 1,500 kilometre dirt road through the heart of the Amazonian jungle while the complementing part went to constructing feeder roads and rural settlements which would entice settlers to raise tree crops—in particular cocoa and coffee—for export. The remote area that was being opened up had until then been occupied by some 10,000 indigenous people belonging to more than 40 different native groups which had been living in the area for centuries, arguably millennia.[143]

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[142] For more information on this event please see Goldman (2004).

[143] Of the native groups, arguably the Nambiquara had the most to lose. The roadway would transverse there entire hunting grounds and nomadic villages. Anthropologist and former World Bank advisor, David Price, discusses the state of the research by the World Bank as completely deficient, and a knowing accessory to the "genocide" that did take place. In a 1975 letter, the scientist sent a letter to his employees at the World Bank stating:
A careful consideration of the FUNAI's place in Brazilian society makes it clear that inefficiency and corruption are the factors which best serve what is seen as the national interest. Brazil wants to get rid of her Indians. Machine guns and gas ovens are bad for public relations, but if the Indians die of "natural causes," who will complain?

The scheme, according to the Environmental Defence Fund researcher had attracted so many colonists—nearly half a million between 1981 and 1986— that the Brazilian land colonization agency, INCRA, had become completely overwhelmed in its efforts to provide these settlers with a legal title to the parcels of land that had been divided. And in part due to this uncontrollable migration, agricultural extension services and credits that had been promised never materialized. In response to the dilemma, the new farmers did what they could do to survive, by slash-and-burning the forests to grow beans and maize. But the overall poverty of the soils and their relative incapacity to provide sufficient nutrients for the crops forced settlers to move on every couple of years. The result was that "By the mid-1980s, the burning of Rondônia's forests became a major focus of NASA research as the single largest, most rapid human-caused change on earth readily visible from space" (1994, p. 28).

A further example of World Bank support to major infrastructural change with little attention put to local populations or natural complexities can be found at the southeastern part of Brazil in the state of Pará. Here some 150,000 square kilometres were deforested in the 1980s. The deforestation followed the construction of a 780-kilometre railway which linked the area with the world's largest reserves of high grade iron ore to the sea. The $304-million World Bank loan (which was completed with a $600-million loan from the European Community and $450-million from the Japanese and would eventually tally up international loans exceeding $3-billion) also funded the building of the iron-ore plant and the seaport at São Luis, the terminus of the railroad. The World Bank touted the project as based on the soundest of environmental data and models.

As Rich explains:

> Once the mine, the railroad, and the port were near completion, the Greater Carajás Program proceeded with an ecological threat of still greater proportions: the proposed licensing and construction by private companies of thirty-four charcoal-burning

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In short, Brazil's real Indian policy is one of genocide through institutional neglect, and this policy is implemented by the FUNAI. If the World Bank allows the FUNAI to take care of the Indians while it makes possible a billion-dollar "development" of their lands, it will be an accessory to this genocide. In the guise of financing development to improve conditions in the Third World, it will be helping a powerful nation exterminate thousands of people who are considered undesirable precisely because they are members of tribal societies. (1989, p. 49)
For more please see Price, David (1989).

> industrial projects along the railway corridor, which would require 3 million tons of charcoal, or 14 million tons of wood a year for fuel. Most of these projects would produce pig iron for export; others would manufacture manganese and other alloys, and cement... By 1987, six of the industrial projects were already established, for of them pig-iron smelters; if all thirty-four were to be carried out, they would result in the deforestation of 1,500 square kilometres a year. At this rate, in ten years an area larger than Wisconsin would be denuded. The thirty-four projects were a model of economic folly and short-sighted rapacity: they could not exist without massive tax incentives, they used the native tropical forest as a free source of charcoal and together they would exhaust this fuel source in as few as a dozen years. (1994, p. 30)

These cases illuminate the untenable result of modernist profiteering in "backward" countries of the "Third World." Democracy, in its radical sense as a control by the people over their lives, workplace and environment was thoroughly banished. What remained was the institutionalization of autocratic rule—literally in the sense of the Bank's propping up of dictators like Pinochet, Suharto and the Brazilian military and abstractly, through the institution of technocratic forces like those required to run rigidly vertical institutions like state-run smelters, railways and mega-dams that the Bank unilaterally supported.

Even when the Bank pushed forward such obvious poverty-reducers as agricultural growth, it took an across-the-board industrial approach. Food production became only part of a larger system which often began with land reforms (generally the parcelling off of communal lands and quickly involved distribution, chemical fertilizers, heavy machinery, pesticides and a tendency for monoculture of export-driven crops, useless for local cultures).[144] In the case of Polonoroeste, it was for the planting of cocoa and coffee. Despite the immediate uselessness of the crop to the local populations, much of these elements come from developed countries at an inflationary price, and have to be quickly transformed into profit by the host country to pay off its debts to the western experts and providers.

[144] For a classic example of this, look up Hewitt de Alcantara (1976).

By 1982 the development decade would officially translate into Latin America's "Lost Decade." On August 12th of that year, Mexico's finance minister, Jesus Silva Herzog, informed US Treasury Secretary Regan, Federal Reserve chairman Volcker, and IMF Managing Director Jacques de Larosiere that Mexico would no longer be able to meet payments on debt due. This set off what has become known as the "debt crisis" would begin.[145] The irony was Mexico, who had been a "star pupil" and had religiously followed the World Bank and IMF's prescriptions would now have to take out the biggest loan ever (in nominal terms) from the World Bank, a whopping 1.260 billion.[146] Regardless, less than two weeks later, Mexico, along with Argentina, Brazil, Greece, Portugal, Romania and Venezuela, became a first-time donor to the Bank, enabling the US to reduce its funding by 35 percent for the year.

The major loans of debt relief of the lost decade were by no means free money. These loans would have more preconditions than their predecessors as the International Monetary Fund (IMF), the "other" Bretton Woods Twin, took the role of renegotiating the debts. Obviously, the developing nations were not in a strong bargaining position. The decade would spell, amongst a host of other statistics, that income per person, the most basic measure of well-being, had actually shrunk between 1980 and 1989 throughout much of Latin America.

Subsection Conclusions

This section has aimed at pointing out some of the general attitudes and directions taken by the World Bank over its first quarter century. As we have seen it was established as an institution that had to borrow huge sums of money to lend during the immediate postwar when the only convertible currency was the US dollar. It immediately opened as a US monopoly due to governmental investment and policies hammered out in the Savannah, Georgia follow-up conference to Bretton Woods. It has since cultivated other kinds of securities and has sold off

[145] For more information on the chronology of events, please see the World Bank (no date) public archives.

[146] The 1,260 million loan would not be approved until January 30, 1990. It would be followed by another loan of 1.8 billion dollars two years later. These loans were both made to a government under Carlos Salinas de Gortari, of the PRI government, one that was widely accused of fraudulent elections that were part of a PRI government that remained in power for 71 years.

parts of its loans to private investors while keeping a US majority. This inherent market-driven impetus within the structure has changed the focus from a universal, all-encompassing idea of development, to one focussed on profit, for shareholders who live thousands of miles away from the mega-projects in developed countries.

We have seen how this inherently political base has created at least eight different institutional biases that I will list below by the time the Morse Commission was called in:

Firstly, the Bank was making money for its shareholders. Private and public investment has never let up since the Bank went public on July 15, 1947. From the $250 million it made on its first and second bond issues, its disbursements would quadruple within a decade and the World Bank and its affiliates would reach over 1.2 billion per annum by the early 1970s. This trend would only continue until the present. Member states would also increase, from the 28 original signers, the Bank would evolve to 186 in the present day. Asher and Mason would later describe the situation of money-making at the bank as "piling up profits at an almost indecent rate" (1973, p. 407).

Secondly, its loans were going to fund primarily infrastructural changes on a massive level. This can be seen with the 1952 restructuring effort through to the present. The high level of science and technology that was being injected into developing nations has backed, according to the World Bank's own archives, primarily projects based on electricity closely followed by transportation which included roads, railroads, ports and waterways. On an agricultural level, it tended to support mono-culture of export-driven crops including re-forestry projects aimed at supporting pulp and paper mills, coffee, cocoa as well as large-scale farming along the lines of the Green Revolution. For this, their greatest expenditure was investing in irrigation and flood control and the result was a technocracy.

Thirdly, the Bank remained true to its policy of "apolitization" of its lending. It routinely supported with huge funds nations that its affiliate, the United Nations had condemned as being undemocratic. These countries varied from military dictators like Chile's Pinochet, Indonesia's Suharto to questionably elected officials like Mexico's Salinas. Portugal and South Africa were also supported during years of tyrannical rule. With these examples it could be said that the Bank

tended to support countries with strong centralized, urban-centric governments which generally were right-leaning in their political outlooks.

Fourthly, due to the Bank's modernist bias in their planning stages, the Bank's proposed infrastructural changes would transform localities with little attention paid to non-scientific particulars,[147] including local communities and ecospheres. Similar to what Jasanoff and Martello have said in their book *Earthly Politics: Local and Global in Environmental Governance*[148] "it continues the modernist tradition in distinguishing science, treated as a universal public good, from knowledge, which is seen by contrast as particularistic, indigenous or local" (2004, p. 336). In the Bank's equation for development, the bottom line was profit for the industrializing nations, and for the shareholders of the lending countries. This reductionist outlook created numerous developmental disasters resulting in adverse environmental and social consequences which in turn became public relations nightmares for the Bank: Polonoroeste, Naranda, and the various Transmigration-based projects of Indonesia to name a few.

As a corollary of the above, one element remained clear. While select portions of the population were seeing the income—politicians, project managers, and the newly created technocracy that developed as a result of the funding—local populations were not getting the funds. In fact, local subsistence farmers were routinely "transmigrated" from their lands to new ones. The result of these forced migrations which were in the tune of millions of people quite regularly resulted catastrophically for local peoples and the new lands that were settled. The studies in Indonesia and India illustrate the point quite clearly. While it could be said that the infrastructural changes were increasing the GDP—that ever-important economic indicator for the economists behind the movement of development—instead of removing poverty from the people, it tended to generate more poverty amongst the lowest classes while new pockets of wealth, particularly amongst the urban, educated elite, were being created.

Sixthly, regardless of whether the GDP rose or dropped via its lending, many of the countries that bought into the World Bank's development plans through the "development

[147] For more information on this please see Goldman (2004).
[148] For a good overview of the subject of locality and globality, please see Jasanoff & Martello (2004) and Baumann (1998).

decade" were within twenty years unable to make enough profit to support their lending. This was an indisputable, across-the-board issue during the "lost decade" in the 1980s, when, beginning with Mexico, the countries of the south began hugely defaulting on their loans.

The Bank's solution, as we will see was to fight fire with fire, loaning even more heavily to these nations with debt relief packages, but with the powerful add-on of imposing important changes to the political structure of these nations. These policies again followed the modernist mode and would severely affect social spending, augmenting programs that enabled the countries to come up with a viable currency. Much as they had been since their initial loans, generally the emphasis was on creating material wealth for creditors via an export driven economy. Thus the end result for the local people who had suffered under the tyranny of dictators propped up by huge World Bank funding was that they (the people) would now have to pay for the, in many cases, ostentatious livelihood and extravagance of their former, authoritarian leaders with even greater poverty, less public services, and more national debt, while these same politicians left the stage virtually untouched by the changes, often using hoarded monies to live comfortably in exile. The case of Mexico is a classic representative of these.

And finally, the Bank too, would come to realize that this kind of lending needed some rethinking. The peasant march initiated by 5000 locals at the Sadar Sarovar dam construction project on the Narmada River Valley was instrumental as Michael Goldman writes to "fuel a growing transnational movement that challenges the legitimacy of this powerful global institution. This movement has focused in part on the Bank's knowledge production process" (2004, p. 55).[149] The Bank's reaction was to begin to integrate environmental assessments. These begin with the first-ever Independent Review Panel that would from hereon be known as the "Morse Commission." As we will see in the following chapter, the democratic base of the environmental groups would quickly develop into an important part of understanding the complexities of man in his environment.

[149] For more information on the Bank's reaction to the so-called "Narmada effect" please see Jasanoff & Martello (2004).

Many have commented on the democratic limits of vertically imposed projects. Noam Chomsky, who has spoken at great length on the topic, sees top-down strategies as the one inherent with the World Bank as inherently doomed. "They can succeed very well at exactly what they're designed to do—maintain top-down leadership, control and authority."[150] Even less so do these vertical political systems open to a dialectical understanding of the world and its environment. It was in this divide that the environmentalists would find a philosophical base for their attacks on these premises as we will see in the next chapter.

3.6 The Economics of Inequality

As we have seen, the original pro-development argument known as the convergence theory was built on Smith's premise of a better future built with compound interest, urbanization and modern values. And from creation of the World Bank, to the Vannevar Report, to the declaration of Truman's Doctrine, to Rostow's brilliant scheme, the scene was set and the wheels were put into motion in the post WWII arena. The concept of development was first applied to the Allies' war-torn countries through the Marshall Plan, then the philosophy was exported to the countries of the south under the International Bank of Reconstruction and Development's financing.

Despite the lack of consensus amongst contemporary thinkers on the reasons for the rebuilding of Europe, two results can not be disputed. First, unprecedented amounts of financial aid—41.3 billion[151]—were given to these countries and favourable results were rapidly achieved. Ravished nations were reconstructed, new ones were institutionalized, and economic growth quickly resumed.

In the background of all this economic growth was the strengthening of a centralized economic/political structure which relied on large-scale socio-technological infrastructures—electrical grids, railways, road systems and industrial ports. These would in turn become the basis of the new world order of the postwar era.

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[150] See Noam Chomsky (1998) p. 150.
[151] For more on the discussion about the amounts given under the Marshall Plan, please see Eches (1975).

The rapid success of rebuilding Europe and Japan in the postwar encouraged many to believe in the process of convergence for developing countries. As we have seen in the previous subsection of the thesis, this was essentially the job of the World Bank. However, the result of the development work to the south—in contrast to that of reconstruction to the north—resulted by most accounts a failure. The reality for most countries of the south was that the fanfare of what World Bank leaders claimed the "development decade" in the 1960s quickly transformed into the "lost decade" twenty years later. Over that period, it became clear that unlike the countries of the north, underdeveloped countries were (and still have been) continuously falling behind the wealthy countries. Divergence as opposed to the promised convergence was an almost immediate and across-the-board emergent factor of the developmental process.

This section synthesizes the economic studies of convergence and divergence by the top economists of the day and up to the present. Its purpose is to consolidate the economic theoretical background for the break of the developmental infrastructure in the early 1980s and show the macro-quantitative reasons behind the United Nation's appeal to what would be called Sustainable Development in the late 1980s, when the lost decade had been all but lost.

This section begins with Simon Kuznets analysis of Rostow's Five Stages and the subsequent school of developmental economics which studied the divergent nature of convergence theory. It then discusses the numerous ways in which divergence can be seen statistically to have taken place.

Due to its complexity, I have subdivided this subsection into five contingent parts.

3.6.1 Simon Kuznets and the Birth of Divergence

Within years of the creation of the World Bank's genesis, concern for the divergent nature of the economies of the poorer nations subscribing to the notion led famed economist (and later Nobel Prize winner) Simon Kuznets to deliver a scathing review of Rostow's theory during his seminal presidential address to the American Economic Association in 1954. His speech was one of the first of the establishment to attack Rostow. In it, he showed that the Five Stages of Growth were quite impossible to prove empirically, something that Rostow had never been able or had to do. Moreover, his focus on the gaping divide between rich and poor became the mode of generations of development economists that would follow his lead.

Contesting the strengths of the classical thesis, he pulled together loose data from Germany, the United Kingdom and the United States showing how the theory worked in these. It was speculated that they grew according to the flourishing of a modern technological rationality that ruled in these areas. However, he found numerous developing nations in which the gap grew, noting in particular, India, Ceylon (Sri Lanka) and Puerto Rico. He concluded that unlike their northern counterparts, these countries didn't show a trend towards equalization in the distribution of income.

The paper suggested that the data that came from the undeveloped nations was "scanty" (1954, p. 68) and inconclusive. But the glaring reality was that the countries of the south were quite obviously not benefiting as the theory had suggested. The resulting question then was twofold. Firstly, he asked if the lack of progress in Southern countries was perhaps due to the difficulty in loosening the shackles of traditional society. Secondly, the data projected a major qualm for development theorists: were these simply an amalgamation of odd nations that were not improving, or would this be the overriding trend for the recipient nations of international development aid in the entire southern hemisphere? And if so, he pondered, "Can the political framework of the underdeveloped societies withstand the strain which further widening of income inequality is likely to generate?" (1954, p. 72)

Like many before him, Kuznets wondered if equalization—at least to some extent—would come from the rising incomes of the poorer sectors outside the traditional farming sector. While

the data proved open to doubt, this was typical of the logic of urbanization which suggested that field workers were likely to get more material wealth by leaving the rural life behind and joining the unskilled labour workforce in the burgeoning cities.

Discussion, in its early stages, focussed on the now much criticized Weberian notion of the "Protestant Work Ethic,"[152] and its more recent metamorphosis into the "Confusian Work Ethic displayed by the so-called Asian Tigers, which in effect considered that cultural ties—in particular the religious ones inspired by the Protestant's reading of the Bible—implied central tenets for the production of great economies, like those found in Anglo and German societies.[153] In chapter two of his work, Weber put it like this:

> The ability of mental concentration, as well as the absolutely essential feeling of obligation to one's job, are here most often combined with a strict economy which calculates the possibility of high earnings, and a cool self-control and frugality which enormously increase performance. This provides the most favourable foundation for the conception of labour as an end in itself, as a calling which is necessary to capitalism: the chances of overcoming traditionalism are greatest on account of the religious upbringing. (1958b, p. 60)

To those involved in the debate, Southern economies, unlike their work-loving Protestant counterparts, were deemed predisposed to not work as hard, nor do as well because of their traditional background. Those working in the experiment of development thought that through experience these emergent populations would learn to mime the ethical patterns of the industrialized countries and through this could perhaps encounter that drive.

Most adherents to the perspective of what has become known as the cultural thesis believe industrial values, like punctuality, hard work, and efficiency can be posited through

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[152] For the original text, please see, Weber (1958).

[153] Weber tried to prove that the Protestant work ethic was the driving force behind the birth of capitalism. The recent study of the role of the "Confucian Ethic" as the motor behind East Asia's Little Tigers—Hong Kong, Taiwan, Singapore, and South Korea—whose economies have accelerated at unprecedented rates in the past two decades.

deliberate effort.[154] "Modernists" argue that these values will emerge naturally as the result of a worldwide process of diffusion of values via international institutions and developmental contact.

While the cultural thesis offers a suggestion as to why this model was being promoted, it does little to analyze the reasons for the divergence that actually occurred in much of the developing world during the postwar. And despite Kuznets' early warnings on the divergent tendency of convergence economics, its proponents by-stepped the question and continued on the assumption that all countries would eventually grow rich, even if at first it might look like the opposite was happening.

In the end, development found support with biggies like President Truman and the World Bank. The Marshall Plan seemed to be working with the Allies. And for whatever other reasons, the poor, "underdeveloped" countries of the south also bought in.

3.6.2 How the "Third World" Diverged

In the 1980s, after forty years of implementation of Rostowian development policies in the south, the statistics and the plight of the world's poorest countries became even harder to ignore. For quite plainly, convergence—the state of the poor countries catching up with the rich ones—was not happening as we will shortly see. With the age of information, and its rapid spread through the various channels of communications, it was quite evident that the harsh social realities of the south had grown to the point that they could no longer be ignored by the north.

The research on this topic generally focussed on the economic concept of Gross National Product (GNP) and per capita income. Quite simply, those working in the field of economics—generally middle-class to wealthy urban men in developed countries—believed that these were the crucial elements of their own society. The translation to all societies seemed automatic and necessary. We will further discuss the use of these figures in this chapter.

Researcher Mitchell A. Seligson's article investigated the issue in his text, "The Dual Gaps: An Updated Overview of Theory and Research." His research, using the World Bank's own

[154] This view was taken on by UNESCO as late as 1983.

1980 edition of the *World Development Report*[155], exposed that rather than converge, the income chasm between rich and poor countries had grown dramatically since World War II.

Seligson's eye-opening work with the World Bank's own data shows that in 1950, the average per capita income (in 1980 US dollars) of low-income countries was $164 whereas per *capita income* of the industrialized countries averaged $3,841. The result is an income gap (the amount that separates the two) of $3,677. Thirty years later, the gap nearly triples as the low-income countries' grew at approximately 2.70$ a year, to the paltry sum of $245. On the other hand, the wealthy nations were now up to an average per capita income 9,648 for an income gap that now reached $9,403 (the divide would double yet again in the 1990s).

John T. Passé-Smith has done a good job continuing that investigation. In his article entitled, "The Persistence of the Gap between Rich and Poor Countries, 1960-1998" (2003, pp. 17-32), he critiques the work of the major economists of the time on the related issues of rates of growth, the absolute gap, the relative gap and country mobility. Although the results reach past the 1987 Sustainable Development break off, I am including them here. We will retake these later findings in the following chapter.

The irony is that the ideal of convergence had so swept policy makers at the UN, that they declared the 1960s as the "development" decade and set a near impossible goal of six percent annual growth as necessary to raise the poverty-stricken to a decent standard of living (despite the mountains of quantitative research on the matter, only a handful of countries have ever been able to sustain such a high level of growth for more than a sporadic term over the past fifty years). In the World Bank's own graph below, note how all sectors have remained below three percent in all decades except for exceptional cases. Poor countries have never exceeded 1.34 percent. As we will see, the repeated call for the near-impossible six percent growth rates has been uttered yet again in the Brundtland Report in 1987.[156]

Passé-Smith shows how Morawetz's 1977 World Bank Group report had stated the same. In this landmark article, the economist evaluated world economic growth in the quarter

[155] All sums are in the 1980 dollar value. From *World Development Report 1980.*

century prior to 1975, and concluded that although the whole world had experienced relatively rapid growth, the gap between the high-income and poor countries in terms of per capita gross national product (GNP/pc) had in fact become greater between these poles.

The tendency for divergence can still be seen clearly in the numbers taken from the World Bank's *World Development Indicators, 2000.* Table 3.6.2a shows how middle-income economies outpaced the rich at a rate of 2.2 percent to 1.7 percent over the nearly forty years since 1960. This would suggest the possibility of convergence, at least at first glance. On closer analysis, the rich countries grew at a close to 21 times greater than the poor countries over the same time frame, improving at a 2.1 percent while the poor stagnated at 0.1 percent. Also, middle country performance was bolstered suspiciously when economic heavyweights like Canada, Italy, and Japan were added to this list in 1960. Without the addition of these major economies, middle country growth would have been considerably lower. The result is that this table shows next-to-zero hope of convergence ever being a reality.

Table 3.6.2a

Growth Rates by Income Grouping

	1960-1998	1960-1969	1970-1979	1980-1989	1990-1998
World	1.71	2.86	2.63	0.72	1.22
Rich	2.10	4.13	2.24	1.83	2.75
Middle*	2.21	3.81	3.07	0.39	1.20
Poor	0.10	1.34	1.30	0.27	0.34
Less than a million	2.32	3.39	4.14	0.76	0.88

Source: World Bank, *World Development Indicators, 2000* (Washington, D.C.: World Bank, 2000).

Table 2.7.2.a. No chance for convergence and the "modified Matthew effect." This refers to a passage in the Bible which Matthew foresees the further accumulation of the rich and continued despair of the poor. The reason for the modifier is that middle countries, in this case, are amongst the rich.

David Morawetz also examined what he called the "absolute gap" between countries. This measurement was done by finding the difference between the mean GNP/pc of a set of high-income countries and that of poorer countries or groups of countries. Again he found that the absolute gap between members of the rich and poor were divergent in nature. His study

compared OECD members and developing countries between 1950 and 1975. The result was that their absolute gap had more than doubled (from 2,191 to 4,839 in 1975 US dollars). Passé-Smith retook this examination and showed that the annual average increase in the gap was around 330$ per year for both middle and poor countries when compared to the rich. The numbers steadily rose from the 1960s to the present. Please see Table 3.6.2b below.

Table 3.6.2b

The Absolute Gap 1960-1998 (in 1995 U.S. dollars)

	1960	1980	1998	Annual Average Increase in the Gap
Income Group				
Middle Income	9623	15333	22317	325
Poor	12081	17739	25016	332
Region				
Americas	10730	15306	22268	296
Middle East/north Africa	11371	15279	22708	291
East Europe/central Asia	11380	15348	22627	288
South Asia	12262	17855	24933	325
East Asia/Pacific	11845	16724	22336	269
West Africa	12030	17463	24810	328
East/south Africa	11931	17259	24280	317
Less than one million	3689	6028	12614	229
Countries That Have Closed the Absolute Gap				
Japan	4267		-17291	
Singapore	9329		-7208	
Hong Kong	9453		3668	
Ireland	7352		5925	
French Polynesia	7487		6366	

Source: World Bank, *World Development Indicators, 2000* (Washington, D.C. World Bank, 2000)

Table 2.7.2b Only five of 115 countries have been able to close the absolute gap: Japan, Singapore, Hong Kong, Ireland, and French Polynesia

By replicating the projections of David Morawetz, John T. Passé-Smith attempted to demonstrate what chance for convergence amongst the poor nations of the world existed. The results of the Table 3.6.2c assume that the countries will sustain the same growth rate as they had achieved between 1960 and 1998. Given this assumption, only 28 countries can ever hope to

catch up to the high income countries. Only six—Botswana, Oman, Dominica, Thailand, China, and Malaysia—have the possibility to do so during the next century. At most, six more would catch up by the year 2200.

Table 3.6.2c

Closing the Absolute Gap

Country	GNP/pc 1995 US$	Annual Average Growth Rate (in percent) 1960-1998	Number of Years until Gap is Closed
Rich (a)	25,394.00	2.1	
Botswana	3460	7.7	38
Oman	4893	5.6	49
Dominica	3099	5.5	65
Thailand	2579	5	82
China	711	6.4	87
Malaysia	4107	4	99
Swaziland	1534	4.8	108
Seychelles	6810	3.1	136
Indonesia	869	4.3	157
Mauritius	3999	3.3	159
Trinidad y Tobago	4468	3	198
Lesotho	696	3.7	232
Hungary	4726	2.8	247
Belize	2607	3	260
Egypt, Arab Republic of	1162	3.3	264
Tunisia	2185	2.9	315
Sri Lank	792	2.9	445
Brazil	4453	2.5	446
Pakistan	489	2.8	579
Turkey	3269	2.4	699
Paraguay	1789	2.4	905
Dominican Republic	1697	2.4	923

(a) Those countries with a GNP/pc of more than 9.361 in 1998(a)
Source: World Bank, *World Development Indicators, 2000* (Washington, D.C. World Bank, 2000)

World Bank data have also shown that there has been a small improvement in the numbers of people that live in total poverty. Table 3.6.2d exposes the fattening of the middle-income country sector which has grown from 21.2 percent of the world population in 1960 to 23.5

percent in 1998. However, despite the good news, the world's poorest countries still harbour 59.7 percent of the planet's population. Also, as we will soon see the intra-national divide conceals a more generalized poverty within nations at all levels.

Table 3.6.2d

World Population Living in Rich, Middle Income and Poor countries

Income Group	1960	1980	1998
Rich	14.1	18.8	16.7
Middle	21.2	17.7	23.5
Poor	64.2	63.3	59.7
Less than 1 million	0.4	0.2	0.1

Source: World Bank, *World Development Indicators, 2000* (Washington, D.C. World Bank, 2000)

However, in the overall distribution of World GDP, the following UN table shows a telling story of how wealth is distributed throughout the world in the late 1980s. An overwhelming 82.7 percent of the world's GDP is held by the richest quintile of the population, while the poorest 60 percent share barely five percent of the GDP.

Table 3.6.2e

Distribution of World GDP, 1989

Richest 20 percent	82.7
Second 20 percent	11.7
Third 20 percent	2.3
Fourth 20 percent	1.9
Poorest 20 percent	1.4

Each horizontal band represents an equal fifth of the world's people
Source: United Nations Development Programme, *Human Development Report, 1992* (New York: Oxford University Press for the UNDP, 1992)

In 1995, Angus Maddison[157], one of the world's most prominent economic historians, concurred with David Morawetz, Seligson, John T. Passé-Smith and other critics of the

[157] For more information please see Maddison (1995).

convergence theory. His examination on capita gross national product (GDP) showed a clear decline in the equality of nations.

While investigating the interregional spread (one that he divides into general sections, which includes Western European, Southern European, Latin American and African countries amongst others), Maddison showed that the overall long-run pattern of income breadth (amongst regions) was strikingly divergent. According to his figures in Table 3.6.2f the interregional spread was less than 3:1 in 1820 and grew steadily larger at each successive benchmark. In 1870, it was 5:1, 1913, 9:1, 1950 11:1, and finally in 1973, it grew to 12:1, a four-hundred percent loss.

According to Maddison's research, the divergence reality was even worse amongst individual countries. The inter-country range between the lead country and the worst performer was over 3:1 in 1870, in 1913, 11:1, in 1950, 35:1, and by 1973 a shocking 40:1. By 1992 it would grow to an astonishing 72:1, but we will get to that in the chapter on sustainable development. Please see graph below.

Table 3.6.2f

Angus Maddison GDP per Capita in 1990 International Dollars in the 56 Country Sample

	1820	1870	1900	1913	1950	1973	1992
Western European Countries							
Austria	1,295	1,875	2,901	3,488	3,731	11,308	17,160
Belgium	1,291	2,640	3,652	4,130	5,346	11,905	17,165
Denmark	1,225	1,927	2,902	3,764	6,683	13,416	18,293
Finland	759	1,107	1,620	2,050	4,131	10,768	14,464
France	1,218	1,858	2,849	3,452	5,221	12,940	17,959
Germany	1,112	1,913	3,134	3,833	4,281	13,152	19,351
Italy	1,092	1,467	1,746	2,507	3,425	10,409	16,229
Netherlands	1,561	2,640	3,533	3,950	5,850	12,763	16,898
Norway	1,004	1,303	1,762	2,275	4,969	10,229	17,543
Sweden	1,198	1,664	2,561	3,096	6,738	13,494	16,927
Switzerland		2,172	3,531	4,207	8,939	17,953	21,036
UK	1,756	3,263	4,593	5,032	6,847	11,992	15,738
Arith. Average	1,228	1,986	2,899	3,482	5,513	11,694	17,412
4 Western Offshoots							
Australia	1,528	3,801	4,299	5,505	7,218	12,485	16,237
Canada	893	1,620	2,758	4,213	7,047	13,644	18,159
New Zealand	--	3,115	4,320	5,178	8,495	12,575	13,947
USA	1,287	2,457	4,096	5,307	9,573	16,607	21,558
Arith. Average	1,236	2,748	3,868	5,051	8,083	13,828	17,475
5 South European Countries							
Greece	--	--	--	1,621	1,951	7,779	10,314
Ireland	954	1,773	2,495	2,733	3,518	7,023	11,711
Portugal	--	1,085	1,408	1,354	2,132	7,568	11,130
Spain	1,063	1,376	2,040	2,255	2,397	8,739	12,498
Turkey	--	--	--	979	1,299	2,739	4,422
Arith. Average		1, 1 94a	1,676a	1,788	2,259	6,770	10,015
7 East European Countries							
Bulgaria	--	--	--	1,498	1,651	5,284	4,054
Czechoslovak	849	1,164	1,729	2,096	3,501	7,036	6,845
Hungary	--	1,269	1,682	2,098	2,480	5,596	5,638
Poland	--	--	--	--	2,447	5,334	4,726
Romania	--	--	--	--	1,182	3,477	2,565
USSR	751	1,023	1,218	1,488	2,834	6,058	4,671
Yugoslavia	--	--	--	1,029	1,546	4,237	3,887
Arith. Average		876a	1, 174a	1,527a	2,235	5,289	4,627

7 Latin American Countries							
Argentina			2,756	3,797	4,987	7,970	7,616
Brazil	670	740	704	839	1,673	3,913	4,637
Chile	--	--	1,949	2,653	3,827	5,028	7,238
Colombia	--	--	973	1,236	2,089	3,539	5,025
Mexico	760	710	1,157	1,467	2,085	4,189	5,112
Peru	--	--	817	1,037	2,263	3,953	2,854
Venezuela	--	--	821	1,104	7,424	10,717	9,163
Arith. Average		783a	1,311	1,733	3,478	5,017	5,949
11 Asian Cour							
Bangladesh		--	581	617	551	478	720
Burma		--	647b	635	393	589	748
China	523	523	652	688	614	1,186	3,098
India	531	558	625	663	597	853	1,348
Indonesia	614	657	745	917		1,538	2,749
Japan	704	741	1,135	1,334	1,873	11,017	19,425
Pakistan	531	--	687	729	650	981	1,642
Philippines	--	--	1,033	1,418	1,293	1,956	2,213
South Korea	--	--	850	948	876	2,840	10,010
Taiwan	--	--	759	794	922	3,669	11,590
Thailand	--	717	812	846	848	1,750	4,694
Arith. Average	609a	638a	775	872	863	2,442	5,294
10 African Countries							
Cote d'Ivoire	--	--	--	--	859	1,727	1,134
Egypt		--	509	508	517	947	1,927
Ethiopia	--	--	--	--	277	412	300
Ghana	--	--	462	648	1,193	1,260	1,007
Kenya	--	--	--	--	609	947	1,055
Morocco	--	--	--	--	1,611	1,651	2,327
Nigeria	--	--	--	--	547	1,120	1,152
South Africa	--	--	--	1,451	2,251	3,844	3,451
Tanzania	--	--	--	--	427	655	601
Zaire	--	--	--	--	636	757	353
Arith. Average					893	1,332	1,33 1

a. Hypothetical average, assumes that average movement of GDP per capita in countries of the group with data--gaps, was the same as the average for the countries remaining in the sample.
b. 1901.

Source: Appendix D [of the original work]. All figures in this table are adjusted to exclude the impact of frontier changes.

3.6.3 Intra-National Divergence

While all the quantitative data being produced by economists through the development process were pointing to international divergence, a 1974 World Bank study undertaken by Montek S. Ahluwalia showed that the intra-national gap between the rich and poor was also growing at rates considerably greater amongst developing countries than industrialized ones. While citing the lack of data as a possible problem to proving his thesis, he went on to investigate the cross-sectional data between developed and underdeveloped countries in an attempt to find emergent patterns. Ahluwalia looked into percentile income shares of the lowest 40 percent, the middle 40 percent and the top 20 percent. His study as seen below shows how the developed countries are evenly distributed between low and moderate inequality, with the lowest echelons of income amounting to about 16 percent of the total.

On the other hand, the research exposes that the income spread is even more unevenly hedged to the richest 20 percent of the nation in most of the poorer countries. The average income share for the poorest 40 percent of the population in developing countries earns on average 12.5 percent of the national income. The percentage fluctuates greatly, reaching as low as 6.5 percent in countries like Honduras and Ecuador.

This evidence when combined with the earlier cited research of Seligson Passé-Smith and Maddison showed that the poorest of the poor, which in many cases includes more than half of the population of the planet, live substantially below the levels stated in convergence research, as all were done on national, not cross-sectional, averages.

As a side note, perhaps the only other surprising fact that comes from this data is that socialist countries are by the most equal in their distribution, with the lowest 40 percent sharing 25 percent of the distribution of income.

Table 3.6.3a

Cross-Classification of Countries by Income Level and Equality

High Inequality Share of Lowest 40 Percent Less than 12 Percent					Moderate Inequality Share of Lowest 40 Percent Between 12 and 17 Percent					Low Inequality Share of Lowest 40 Percent 17 Percent and Above				
Country (Year)	GNP/pc US$	Low 0.4	Mid 0.4	Top 0.2	Country (Year)	GNP/pc US$	Low 0.4	Mid 0.4	Top 0.2	Country (Year)	GNP/pc US$	Low 0.4	Mid 0.4	Top 0.2
					Income up to US. $300									
Kenya(69)	136	10	22	68	Salvador (69)	295	11.2	36.4	52.4	Chad (58)	78	18	39	43
Sierra Leone (68)	159	9.6	22.4	68	Turkey (68)	282	9.3	29.9	608	Sri Lanka(69)	95	17	37	46
Philippines (71)	239	11.6	34.6	53.8	Burma (58)	82	16.5	38.7	448	Niger(60)	97	18	40	42
Iraq (56)	200	6.8	25.2	68	Dahomey (59)	87	15.5	34.5	500	Pakistan (64)	100	17.5	37.5	30
Senegal(60)	245	10	26	64	Tanzania (67)	89		26	61	Uganda(70)	126	17.1	35.8	47.1
Ivory Coast (70)	247	10.8	32.1	57.1	India (64)	99	16	32	52	Thailand (70)	180	17	37.5	45.5
Rhodesia (68)	252	8.2	22.8	69	Madagascar (60)	120	13.5	25.5	61	Korea (70)	235	18	37	45
Tunisia (70)	255	11.4	53.6	55	Zambia (59)	230	14.5	28.5	57	Taiwan (64)	241	20.4	39.5	40.1
Honduras (68)	265	6.5	28.5	65										
Ecuador(70)	277	6.5	20	73.5										
					Income U.S. $300-$750									
Malaysia (70)	330	11.6	32.4	56	Dominican					Surinam (62)	394	21.7	35.7	42.6
Colombia (70)	358	9	30	61	Republic (69)	323	12.2	30.3	57.5	Greece (57)	500	21	29.5	49.5
Brazil (70)	390	10	28.4	61.5	Iran (68)	332	12.5	33	54.5	Yugoslavia (68)	529	18.5	40	41.5
Peru (71)	480	6.5	33.5	60	Guyana (56)	550	14	40.3	45.7	Bulgaria (62)	530	26.8	40	33.2
Gabon (68)	497	8.8	23.7	67.5	Lebanon (60)	508	13	26	61	Spain (65)	750	17.6	36.7	45.7
Jamaica (58)	510	8.2	30.3	61.5	Uruguay (68)	618	16.5	35.5	48					
Costa Rica (71)	521	11.5	30	58.5	Chile (68)	744	13	30.2	56.8					
Mexico (69)	645	10.5	25.5	64										
South Africa (65)	669	6.2	35.8	58										
Panama (69)	692	9.4	31.2	59.4										
					Income Above U.S. $750									
					-									
Venezuela (70)	1004	7.9	27.1	65.5	Argentina (70)	1079	16.5	36.1	47.4	Poland	850	23.4	40.6	36
Finland (62)	1599	11.1	39.6	49.3	Puerto Rico (68)	1100	13.7	35.7	50.6	Japan (63)	950	20.7	39.3	40
France (62)	1913	9.5	36.8	53.7	Netherlands (67)	1990	13.6	37.9	48.5	UK (68)	2015	18.8	42.2	39
					Norway (68)	2010	16.6	42.9	40.5	Hungary (69)	1140	24	42.5	33.5
					Germany (64)	2144	15.4	31.7	52.9	Czechoslovakia (6	1150	27.6	41.4	31
					Denmark (68)	2563	13.6	38.8	47.6	Australia 165)	2509	20	41.2	38.8
					New Zealand (69)	2859	15.5	42.5	42	Canada(65)	2920	20	39.8	40.2
					Sweden (63)	2949	14	42	44	United States (70)	4850	19.7	41.5	38.8

Source: *Redistribution with* Growth, The World Bank (1974).

3.6.4 From Convergence to Tolerability

The question these economic statistics revives is: will the poor ever catch up? The likelihood seems smaller than ever as more recent studies have focused on yet another salient aspect of development economics: relative income gap versus comparative income gap, with the former being related to local levels while the latter examined internationally. Authors investigating this area have realized that when comparing rich and poor countries, even if a relative per capita income gap is narrowed with say a pay increase to local workers in a poor country, the comparative position of the poor generally worsens because of the absolute gap has widened with the rich countries, whose enormous economic structure generally grows by at least three percent annually. Mathematically, a great income gain of say 20 percent of a measly salary will never compare to a small income increase of a large salary's command over goods and services.

The modern economic reality is that while the world has seen a few cases national rags-to-riches cases, in particular what has become known as the Asian Tigers—namely Hong Kong, Singapore, South Korea and Taiwan—, it has been generally impossible for poor countries to ever equal the rich. This has lead modern economists like Thirlwall to ponder the "impracticality" of world income equality. Instead, Thirlwall suggests, "that the primary aim is not equality of living standards throughout the world but 'tolerable' living standards in all countries, which is a very different matter" (1999, p. 39). Of course this in turn creates the problem of defining 'tolerable' living standards, and perhaps even more complex, guaranteeing a reasonably equitable distribution of that average level of real income.

By taking this path, economists have tried to create a much more reasonable time scale involved in reaching 'tolerable' living standards. According to Thirlwall, if the average level of per capita income now enjoyed in the industrial countries is regarded as the tolerable level we estimate it will take over a century for the average poor country on current performance to attain it. But the overriding question remains for Thirlwall and other economists: can these countries wait for that long in intolerable conditions?

Perhaps more than the answer to the question posed by development economists like these, the question is how can this question even be asked. Thirlwall's question is by no means a

trivial matter. It is the daily bread of most economists working in the field. However, while the coolness of these figures are sometimes hard to put a face or reality to, the simple fact is that these numbers do reflect a major tendency—more than half of the world's population (3.2 of 5.7 billion) live in these poor countries. And perhaps most counter-intuitively; these were the countries which were being "helped" by development economics and lending of the World Bank.

While the aforementioned studies represent only a fraction of the studies undertaken in the field of development economics, they represent the overwhelming consensus that convergence is not happening. Thus, in the early 1980s, the statistics and economic reports after nearly forty years of World Bank aid had proven one thing: something in development economics was awfully wrong. The data, though, was inconclusive in showing if this state of affairs was an accident, a result of a gross misapplication of the theories, a misunderstanding, or an inalienable fault in the design of development economics.

3.6.5 The "Dismal Science" and its Biases

As we have seen, from the early days of economics, there has been a strong urban bias to the findings in the field. From Adam Smith to Walt Rostow economists have pushed for the ending traditional society and replacing it with a modern, "rational" one. According to the modernist thinking, there is no better way to do this than to concentrate people and educate them. The best place for this (along with industrialization) is to bring them to the cities.

This bias, according to Theodore Roszak in his introduction for the classic *Small is Beautiful: Economics as if People Mattered*, comes directly from the ethnocentricity of the field of economics.

> Since they are universally urban intellectuals who understand little of rural ways, they easily come to regard the land, and all that lives and grows upon it, as nothing more than another factory of production. Hence, it seems to them no loss, but indeed a gain, to turn all the world's farming into high-yield agri-industry, to depopulate the rural areas, and to crowd the cities to the point of chronic breakdown and crisis. Since they inherit their conception of work from the dardest days of early

> industrialization, they find it impossible to believe that labour might ever be a freely-chosen, non-exploitive, and creative value in its own right. Hence, it seems to them self-evident that work must be eliminated in of machines or cybernated systems. Worst of all, since their world view is a cultural by-product of industrialism, they automatically endorse the ecological stupidity of industrial man and his love affair with the terrible simplicities of quantification. (Cited in Schumacher, 1973, p. 7)

Roszak argues that the statistics used in the economic index show all expenditures, including "mad waste," and all looks rosy. Economics has only become scientific by becoming statistical. "But at the bottom of its statistics, sunk well out of sight, are so many sweeping assumptions about people like you and me—about our needs and motivations and the purpose we have given to our lives" (cited in Schumacher, 1973, p. 8).

Perhaps most convincing in his argument is the condition of agriculture which has been starved of resources. This is the direct result of the ruling elite generally originating from, or identifying with, the non-rural environment. It also has to do with policy makers having been led astray both by empirical evidence that shows a high correlation between levels of development and industrialization, and by early development models that stressed investment in industry.

The urban bias aside, Economics as a science faces numerous other problems. Simon Kuznets realized these when he stated, "These are broad questions in a field of study that has been plagued by looseness in definitions, unusual scarcity of data and pressures of strongly held opinions."[158]

World Bank economist Montek S. Ahluwalia agreed with Kuznets when writing the World Bank's *Redistribution with Growth*, stating:

> The data are very weak, but they are the only data we have. An extreme response to the problem is to reject any use of most of the available data for analytical purposes. The approach adopted in this chapter is less puristic. We assume that until better data become available, cautious use of existing data—with all its limitations—provides some perspective on the nature of the problem. (1974, p. 60)

[158] For more information on the subject, please turn to Kuznets (2002) p. 44.

In common with Kuznets (1954), he continues that the excuse for building an elaborate structure with a shaky foundation:

> is the view that "speculation is an effective way of presenting a broad view of the field and.. so long as it is recognized as a collection of hunches calling for further investigation, rather than a set of fully tested conclusions, little harm and much good may result. (1974, p. 60)

The result of this modernist formula has led Nobel Prize winner, Amartya Sen to investigate the socioeconomic dynamics which combined with a failure of public action have led to numerous of the large historic famines of recent history.[159]

Working from within the field of economics, Sen's best-known work in this area, *Poverty and Famines: An Essay on Entitlement and Deprivation*, challenges the commonsensical view that food shortage best explains famines. Rather, his study shows how throughout India, Bangladesh, and Saharan countries famines have occurred even when the supply of food was not significantly lower than during previous years (without famines), or that famine stricken areas have often been food exporters. By investigating these lesser known areas often left unknown by most economists, he has shown how various social and economic factors influence different groups in society and determine their actual opportunities. The results come into open conflict with the overarching development paradigm that has existed since the postwar.[160]

Chapter Conclusions

This chapter has questioned development. Its purpose was to follow the line of philosophic questioning that has occurred in the tradition of the Critical Theorists, starting from Martin Heidegger and ending with Andrew Feenberg and to find out the inherent philosophical and practical biases of the development movement. These philosophers that we have visited in

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[159] Sen (1997, 2002) amongst numerous authors has dedicated much effort to showing this point.
[160] The idea of the political nature of the mega projects of development has been treated by the likes of UNESCO authors, Gupta and van der Zaag (2007) who argue that "grand scale engineering works... are only justified after all (smaller scale) alternatives have been exhausted, and only if these works are meant to satisfy, in intention and in implementation, vital human needs."

chapter one of the thesis questioned technology as per its capacity to afford agency to the people, and thus I have examined the question of agency within the political and historical aspects of the international development scene.

On the developed end of the spectrum we have seen that at least three important events that helped foster a willingness for development throughout the international arena over the time frame that goes from the beginnings of the postwar up until the 1980s. Firstly, we have seen how the postwar bore a world divided by two main political theories—capitalism and communism. Each offered and contended for a solution to the problem of modernity, the former via its market system and the latter via its soviet-controlled workforce. However, despite those differences, both viewed technology—perhaps the greatest, most engaging facet of modernity—through the same instrumental eyes. Technology was thought of as a neutral entity that was humanly controlled. The means and ends of technology were thus separate aspects. The second element we saw was that of the two principle political spheres that were active in the postwar, it was the capitalist—particularly amongst the Anglo—countries that pushed for development in the market-based economy typical of the regime. And thirdly we saw that from the postwar and through the Cold War, of the two political paradigms to fight for world dominance, capitalism would be the one to win out and thus the push the concept of development would survive and indeed thrive in the post-Perestroika era up until the present.

Following Heideggerian logic which implies that every revealing at the same time is a concealing we looked at how development as such implied its necessary, flip-side concept—"under-development." Through the play and tension between these two values came the positivistic revealing of this value-laden concept. For the theory of development necessarily implies the ideal of universality which we examined in Rostow's five progressivist steps to development, and from this we examined how the World Bank was created to do just that—enable development from the non-developed—which had been revealed through this juncture as underdeveloped—nations of the south. And that change from subsistence to industrial economy would make a world of difference.

This chapter has shown how the development project sponsored a certain kind of development. It was one based on the transfer of hugely vertical and politically unresponsive institutions and technologies, such as electrical infrastructures, ports and export-based facilities run by powerful techno-scientific minority from the North to the South. In turn, this created a fundamentally undemocratic system of rule in many of the countries of the world where decisions were made by the empowered few without the consent of the majority of the people. We have seen numerous objections to this state of affairs. Clearly what has happened in numerous of the World Bank development projects was the financial burden of the multi-billion dollar loans fell onto the laps of the citizens of the countries whose oft non-democratically elected governments signed for them on behalf of the techno-scientific minority who would profit from the projects.

After examining its foundations along with a brief history of development, we have seen that the Classical Economic Theory of Convergence that grew out of the postwar capitalist technocracy told us that in the end we would all be rich. Yet the quantitative and qualitative measurements that arose out of forty-some years of development action showed much evidence to contradict the theory. The income gap between rich and poor countries has grown exponentially during this time period, with the average per capita income of low income countries in the 1950s at $164,[161] while the industrialized countries averaged $3,841. The absolute income gap was thus $3677. By 1980, the income level of the poorer countries had risen to $245, while the industrial countries were now at 9,403, putting the absolute gap at $9,648, almost three times its earlier amount.

Convergence did not occur by any means. By the 1980s the "happiness" that had been spoken of during the closing session of Bretton Woods had actually resulted in an acute economic, environmental and social misery for the majority of the people of the poorer nations. Certainly the rich did get richer. But the poor, of whom 2.5 of the world's 6.1 billion people fall under that category, were living in a great disparity, one that would lead Latin American scholars and economists to name the 1980s the "Lost Decade."

[161] Amounts are stated in 1980 US dollars.

And not only did the whole world not get rich, and not only was there an increasing disparity between the haves and have-nots, there was also increased violence; the festering income inequality had often resulted in the outburst of such conflicts as civil wars, guerrilla movements, and armed uprisings as we have seen in Latin America, Africa, and South East Asia throughout the time span. Obviously, economic (not to mention other, non-monetary factors) growth was severely stunted (and in many cases reversed) by these manifestations of violence and inequality. Critical theorists explain that the violence that comes from these manifestations tends to mimic the system of governance which allows for little agency by the lower end actors, so that their claim for agency often comes in the form of armed conflict.

This situation had been exacerbated by the World Bank's ability to expand its influence around the planet with its powerfully technocratic Articles of Agreement that allowed it to operate both autonomously from any other institution and free of any moral or non-economic bias. In terms of the World Bank, we have seen that via its Articles of Agreement, was the birth of a technocracy that was totally uninvolved with its projects except for at the abstract scientific level, and at the political level, where they often supported non-democratically elected governments like those of Indonesia, Chile under Pinochet, and Brazil. The basis of technocratic decisions were based on the high level scientific practitioners' choices in countries that were struggling to survive often headed by authoritarian dictators, with hugely ranging effects, the least of which would be foreign debt, and divergent incomes both internationally and nationally.

Throughout the upper echelons of advanced industrial society, the leaders lived a "progress" like no other the world had seen. In the countries of the north, the postwar economy through the Cold War had boomed like no other time in history. And with the crumbling of the Soviet empire under Gorbachev, the capitalist leaders saw a seemingly historical end to communist philosophy. This was rapidly interpreted as a justification for capitalism and the positivistic conclusion that we had reached the "end of history." In fact, with the huge material increases in Europe, Japan and the United States during this postwar period, the rich had finally broken the chains that Keynes had spoken of at Bretton Woods. Certainly his prophesy that this

would be the end the "nightmare" in which most of his generation had spent too much of their lives had come true.

Yet at the same time, we have seen in this chapter that by the early 1970s, the elements that took place at the World Bank had within them the seeds of despair. Development had created vertical systems analogous to the wartime military system. They were unresponsive to democratic rule. The lower end actors would eventually be heard, fighting against the idea of closed door policies which never took the masses into consideration. Mass poverty and rebellion would be addressed slowly by the UN through their various international meetings and conferences and by the Morse Commission which would be the first to rebuff a World Bank project. By the 1980s, as Latin America fared through their lost decade and the environment on all continents was facing major disruption, the United Nations was compelled to address the problems of development in an organized and transcendental way.

This chapter has shown that convergence-theory inspired development clearly did not enable agency in the lower end actors and thus was undemocratic, and ultimately untenable. For the task of re-visualizing poverty and wealth, the UN subsequently created the World Commission on Environment and Development (WCED), whose product was entitled *Our Common Future* which we now turn our questioning attention to.

CHAPTER 4. QUESTIONING SUSTAINABLE DEVELOPMENT

"What it cannot comprehend and appropriate, it not only cannot appreciate, it cannot tolerate... In the encounter of modern knowledge with [vernacular knowledge], the real danger is not that modern knowledge will appropriate [vernacular knowledge] but that it will do so only partially and will return this partial knowledge... as the solid core of truth extracted from a web of superstition and false belief. What lies outside the intersection of modern knowledge and [vernacular knowledge] risks being lost altogether."

Stephen Marglin[162]

Introduction

The past chapter has shown that by the early 1980s, the United Nations was in need of a sobering approach to the raging hangover that close to four decades of boundless post-WWII development had left it with. At this climax of Morgenthau's program of Big Business lending and spending, it had finally become common knowledge that the world's resources were not infinite as he had stated in 1944 at Bretton Woods; rather, it had become clear that the planet was a finite place with limited reserves and rapidly dwindling life-support systems.

This was also the juncture in time for humanity to face another reality check: numerous social crises including astronomical rates of poverty, hunger, population growth, and a disparity between rich and poor never before witnessed on Earth were becoming more and more critical on all continents. Widespread hunger and the AIDS epidemic breaking out in Africa—the most heavily affected continent on the planet—were being heralded as just the tip of the iceberg.

The myth of convergence also faced a new challenge during the 1980s, as one-by-one, Mexico and the countries of the south began reneging on their World Bank loan payments, and economists began confirming what those in the south had known first hand—there would be no unity of nations and people through aggressive economic development. Despite meticulously following the World Bank's prescription of developing a technocratic superstructure run by

[162] Cited in The Ecologist (1993) pp. 72-73.

scientists and politicians, and opening markets to foreign investors, the promise of convergence—that in both economical, social and technological terms the south would catch up to the north—was still a pipedream. In fact by 1987, the Mexican economic crash and the domino effect it had in the region showed that the "disease" of poverty had been exacerbated—not helped—by the Neoliberal cure. The economists of the North of the previous chapter had concurred with the local populations that Latin America as a region, along with numerous other developing sectors of the planet suffered a long-overdue financial meltdown despite being star pupils of the World Bank's "development decade" just 20 years earlier.

What proponents of Rostowian-styled development had reduced to a "technical" problem (in the Marcusian sense) which they called "underdevelopment" that could be fixed with a "technical" solution called "development" was now a juggernaut of disparity. Furthermore, this disparity involved a wide range of factors which were never covered or considered by the simplified techno-scientific means put forward by development experts. As we have seen in the previous chapter, "underdevelopment"—in all senses of the word: greater international and intra-national disparity, poverty, huge, never-seen-before foreign debt, and entire populations incapable of participating actively in the market—had grown massively throughout the postwar world arena despite the international development planning that had begun in Bretton Woods. And simultaneously, environmental destruction, incurable diseases and never-seen-before climate changes were also headlining the day.

Parallel to the growth of the development economy since the postwar, the environmental movement had grown and had emerged with a strong voice, multiplicity of readings, and complexity of organization. The symmetric growth of the environmental movement with that of the development industry could be argued to have had its roots in the expansion of the technocracy that fundamented the development sector as we have seen in the chapter on Greenpeace.

The development program with its ideal of convergence had and has been a watershed for the technocrats and the wealthy—Wall Street investors were getting their money back plus interest since the World Bank's Initial Product Offering (IPO) in 1947. and the result was that the World Bank had grown exponentially from their first years of operation with annual payouts

ranging beyond 24 billion a year to over 100 different countries[163]—and the structure was autopoetic, reproducing itself, empowering ever more scientists, economists and engineers in all corners of the Earth to do their work, and enticing more and more investors, politicians and populations to buy into it.

Yet, for the loaners—that is the voiceless people of the nations who borrowed, not necessarily the leaders who had mortgaged their countries on these loans—it had been disastrous. The much-heralded development decade had come and gone and all the south was left with was huge debts, exploitative international free-trade deals,[164] environmental catastrophes, all elements that would lead scholars to call the 1980s Latin America's Lost Decade. At the ecological level, the voiceless ecosphere had been receiving a similar deal; desertification and major disruptions in life cycles of the natural world were resulting in chaotic and tragic losses to the stability of the earth, key issues like the ozone layer, desertification in the Sahara, the death of the Rhine River in Germany, multinational corporations infusing hormone-mimicking chemicals in the food chain and nuclear waste treatment were but a few of the contentious side-effects of the modern Neoliberal, technologist economy. These effects, while primarily seen in the developing world were also inculcating in the developed one.

While just about all agreed that there was indeed a problem, the necessary steps to take towards a solution were not as consensual. In true technocratic fashion, the one commonality amongst those working on the project at the highest level of the UN and the World Commission of Environment and Development was that the response, like development had been during its time,

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[163] For more information on the distribution of the World Bank lending, please refer to Rich (1998). This data was taken from page 7. It is also noteworthy that generally the World Bank has evolved into a bi- and multi-lateral lending agency, which is to say it provides loans with other agencies, where the proceeds are split roughly 50-50. That being said, the 24 billion stated here would represent roughly only half of the loan values, that is, over 48 billion per year.

[164] To emphasize this point, World Bank themselves reported on November 29, 2006, that the North American Free Trade deal was not an option for Mexico any longer. Daniel Leipzeiger, VP of the World Bank said "Ya se le acabó lo bonito al TLCAN..." (The good of NAFTA is over). In the same article Stanford University's Stephen Harber claimed that the Mexican economy has grown in a very deficient form since the signing of the treaty; statistically it was 54 percent slower than before the same period (1.3 percent from 1994 to 2005 versus 2.4 percent in the time between 1950 and 1980. For more on this please turn to Amador (2006).

should be universally applicable, centrally controlled,[165] hierarchically accepted and based on the "latest and best scientific evidence"[166]—essentially still a technical solution. It could be argued that it was in fact the patient prescribing its own cure—the people in the backrooms of the UN, the group that had backed development since its outset, had to self-diagnose their own spiraling pathology.

This chapter seeks to introduce the solution that the United Nations proposed through their creation of the World Commission of Environment and Development (WCED). Beyond presenting the work as an *a priori*, the chapter seeks to contextualize and historicize the Commission and its work. Thus, after introducing their text, the question this chapter seeks to answer is what *is* the United Nations version of Sustainable Development? By already having exposed the views of the radical side of the environmental movement in the chapter on the theoretical framework, where we have seen the non-synthetic divide between representative and participative democracy, this section seeks to find out where the United Nations fixed their definition on the axis of that discussion. The choice, as we have previously determined through the writings of Marcuse and Feenberg, is one that either democratizes decision making by local communities or another that empowers a centralized and authoritarian technocracy. The choice of the Commission will enable us to theorize what kind of democracy is being proposed.

As we have seen, the legislators at the United Nations confronted the technocratic model's newest sparring partner, the environmentalists who, as we have seen, pursued a solution to the environmental and social inequality that had grown during this modern phase of development. Through a co-option of this sector of society, the UN would attempt to emancipate the stress that their development policies had enacted on a global scale. However, as we have seen in previous chapters, the environmental debate certainly finds its roots in the natural environment, but its continuum carries far over to converge firmly on the social and political. Thus, let us be reminded how at its extreme, the environmental movement is as much or more about participatory democracy as it is about the environment.

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[165] The WCED called it a "greater need than ever for co-ordinated political action and responsibility" (1987, p. x).
[166] The WCED (1987) claims this in its introductory chapter. See page 4 of the document.

Development, as we have seen, is based on a technocratic, representative democracy. It was backed by the United Nations for the past 60 years. The issue, however, is that the United Nations, a post-war institution that had been given relative autonomy to make policy was created at the same time as the Bretton Woods Twins was in effect a technocratic and representative system. With these basic factors under consideration, the question here can be rephrased: could such a vertically imposing superstructure—which had depended on a representative democratic means—as the UN push the boundaries of the status quo enough make room for the radical, participatory democracy that the environmentalists lobbied for?

The answer came in the early 1980s, when the increasing devastation of the natural environment throughout the planet along with the acceleration of ecological disasters—Love Canal, Three Mile Island, Chernobyl to name but a few—had created enough tension within the development camp that they explicitly made an effort to include an environmental aspect to their work. The United Nation's first move was on December 19th, 1983. The General Assembly Resolution A/38/161— "Process of Preparation of the Environmental Perspective to the Year 2000 and Beyond"—created the World Commission on Environment and Development (WCED). Its first Chair was Gro Harlem Brundtland, the eminent Norwegian Prime Minister of Norway who had previously been the Minister for Environmental Affairs in her home country.

The WCED was charged with the explicit burden of bringing together the environment with development—as the two words in its acronym co-existed side-by-side. They would do so by giving both terms a particular reading, basically modifying the latter by reducing the former to the adjective "sustainable," while leaving the traditional core concept of development thus modified. It would then spend some three years and 400-plus pages fleshing out what their particular prescription of sustainable development meant.

And with that, the WCED forwarded in their landmark document, *Our Common Future*, the all-encapsulating and lasting definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 8). For the purposes of this introductory analysis, let us visit this "black box" of sustainable development and re-examine its syntax. While section 4.4 below does a more

complete overview, here we can see its beginnings as the combination of words is made from two substantives: "sustainability" and "development."

It can be noted that when offering the solution for man's age-old problem of overuse is that the concept of "environment" gets transferred to the concept of "'sustainability" and then is reduced to an adjectival role, as it is transformed into "sustainable," modifying the true driver and noun of the phrase, which is development.

The importance of this document and the term sustainable development should not be underestimated. The Brundtland Report represents the beginnings of the first-ever centralized global effort to formulate an international agreement that recognized and addressed the interconnection amongst the triple baseline values of sustainable development: economic, social and environmental well-being. Moreover, the magnitude of *Our Common Future* has stood the test of time. It remains the foundational document in what has become the major field of sustainable development and is still the go-to description of sustainable development, some 20 years since its defining.

This chapter examines in close detail the emphasis of development in the theory. For, as the twenty-first century is well on its way, if we are to choose between one of the two, do we really need more development? Or is it more on the lines of sustainability—or other aspects put forward by the environmental movement—that we should enforce? Is it appropriate that sustainability play merely an adjectival role in the future of the planet, or should it not be development that takes the secondary position. And finally, why is it that development and its handmaid, economic growth, play such a large role in this agenda? Who are the actants that are pushing for this definition? Whose common future are they really discussing?

Throughout the thesis we have been looking at the possibility of agency within technocratic society, and the ability of the lower-end actors to affect change on the operations of a system that has been until now authoritarian and exclusive under the postwar development paradigm as seen the last chapter. Using Critical Theory, we have seen how technical codes "invisibly sediment values and interests in rules and procedures, devices and artifacts that

routinize the pursuit of power and advantage of power by a dominant hegemony" (Feenberg, 2000, p. 15).

As we have seen, the WCED developed amid an environment of world crisis which included the AIDS issue, Latin American debt, Chernobyl, and other major catastrophes. It came about during a time when the former style of economic development had proved untenable both in respect to humans and the environment they lived in. And furthermore, it was legislated by the UN to be "a global agenda for change" (WCED, 1987, p. ix). The radicalization of the situation was to the extent that governmental leaders were in dialogue with environmental leaders to enable such a possibility. The Greenpeace chapter earlier on in this thesis was also illustrative of that fact.

To conduct the questioning of sustainable development, this chapter turns its gaze onto this foundational document which sits at the crossroads of development, democracy and the environment—the key elements of this thesis, and arguably the future of humanity and the planet as we know it. To understand this we go back to the premise of Feenberg's Critical Theory, which theorizes that the commonsensical view which limits democracy to the state is insufficient in today's technology-laden world. Democracy, as we have seen, has to be extended beyond its traditional bounds into the technically mediated domains of social life. Otherwise its use value will continue to decline, democratic participation will wither, and the institutions we identify with a free society will gradually disappear (Feenberg, 1999, p.2). So, what does the Brundtland report concretely propose for the solution?

To question Sustainable Development, as per the Brundtland Report, this chapter will look at that this crucial area of agency within the technological sphere that has been the focus of this thesis from the very beginning. We have seen how throughout modernity technological decisions have affected more and more of social life and have had obvious political impacts. We have also seen that from here one can draw diametrically opposed conclusions: either politics becomes another branch of technology, or technology is recognized as political. The first alternative leads directly to technocracy: public debate will be replaced by technical expertise; research rather than uninformed opinion of the voters will identify the most efficient course of

action. The latter alternative, on the other hand, leads to a romantic protest, one that resonates with the work of Heidegger on the matter (Feenberg, 1999, p.2). The Critical Theory position that this thesis has argued from the beginning, as we have seen, finds a new route out, by steering his course between resignation and utopia, theorizing the concept of democracy and agency in a technologically-geared world.

This chapter undertakes the critique of this fleshing-out of the terms by the WCED and consequently by the UN and World Bank. It analyzes the co-opting of the concept of sustainability crucial to the Brundtland report in eight different sub-sections, each which asks a separate, yet interconnected question to help us draw conclusions on this bigger issue:

Section 4.1, "*A Micro History of the Environmental Movement and the Background of the Brundtland Commission*," historicizes and contextualizes the main events and environmental background that brought about the tension within the United Nations to commission the Brundtland Report. Beyond its discussion of the details of the case, it shows that Sustainable Development is not an *a priori* scientific proof; rather, it shows it is the result of a battlefield of divergent interests.

Section 4.2, "Whose Common Future?", investigates the background of the Brundtland Report, including who wrote it, what their mandate was and how they interpreted their particular mandate. From these starting points we can engage in a first approximation of what the document's technical code will be based on. This second section also shows how consensus in the sense of social construction played a part in the creation of the document. By so doing, it eradicates the possibility of seeing the United Nations' version of sustainable development as an *a priori* truth; and rather shows how the messy nature of consensus was achieved by the Commission.

Section 4.3, "Sustainable Development: a More Pleasant Form of Control?", investigates the terms of Sustainable Development under the lens of Marcuse's work on the problematic of one-dimensional society. It looks at the hegemonic tendencies that undermine the foundations of potentially revolutionary traditional culture. As chapter two has shown, this is the result of a

technological rationality resulting in political rationality with radical thought disappearing in the folds of an operationalized fix.

Section 4.4, "The Syntax of Sustainable Development," retakes Marcuse's and Barthes' argument on the language of domination and takes a dialectic approach and investigating the anti-critical analytic predication found in the syntax of sustainable development that we visited in the theoretical framework of this thesis. By taking this aesthetic approach, we will see an approximation of what the actual term "sustainable development" means, and what possibilities it opens up and which it closes down—again, in terms of our key concepts of democracy and agency.

Section 4.5, "The Brundtland Report's Sustainable Development" investigates the seven key elements that the document discusses to enable a so-called sustainable development. This section in its essence spells out what recipe was prescribed by the Brundtland Commission, showing, at last, which of the elements of the environmental movement were normatively co-opted, and subsequently which were left out. Thus this section concludes by asking: what kind of agency does the document allow for? What does the document stipulate? Does the new technological code for the newly formed concept of sustainable development offer the possibility of enhanced agency? Or is it still a battleground where agency and democracy must still be fought over?

In section 4.6 the thesis investigates how the WCED responds to the environmental debate. And finally the chapter concludes using the work of Marcuse, Feenberg, and the ideas developed within the field of Science and Technology Studies (STS) on the concept of sustainable development, tying in what we have seen in the earlier chapters with what we have seen when putting the WCED and their work under a lupe.

Ultimately, then, this chapter investigates if the very essence of the participative democracy that the radical environmentalists were fighting for was adopted by its political opponents, the power brokers atop the hegemonic hierarchy. It asks if the people who were empowered to write the document in this case the rulers of the United Nations and those commissioned via General Assembly Resolution A/38/161 were prepared to decentralize their

power. It takes from the field of Constructive Technological Assessment (CTA) and Feenberg's studies on Democratic Rationalizations that we have seen in the theoretical framework, which has shown that historically the democratization of technological problems can and does work.[167]

While the thesis is thus rooted in the proofs of democratic realizations of Critical Theory and CTA, and discards determinism, the question concerning sustainable development urges an examination of the document in which the democratization of technology was to be a salient and crucial issue. Going back to the introduction of this thesis, the chapter ends with a picture that questions if sustainable development as was defined by the Brundtland Report is a worthwhile prescription for the future of the planet or a document worth starting over. In terms of this chapter, the question is framed by the social platform put forward by the environmentalists which was essentially a Critical Theory of technology (and technocracy!).

If the democratization of technology is a salient issue in the document, then the results written into the technical code of the document should have filtered down to enable agency and reduce technocratic influence, thus increasing public participation. These will be seen under the kind of investigation this thesis undertakes. For, if these elements do not appear in *Our Common Future*, then it is likely that the two-headed battle over the environment and democracy is yet unfinished, and that no matter how many more world summits on the environment take place, the content of the Brundtland Report—the very definition of sustainable development and basis of these world summits—needs revision. This, in essence, will enable the refocusing of both the environmental and developmental movements in their efforts to democratize technology.

[167] The need for public participation in resource development has been an emerging response to the development program. For an interesting example focused in Tanzania, please see Dungumaro & Madulu (2003).

4.1 A Micro History of the Environmental Movement and the Background of the Brundtland Commission

As we have seen in chapter two, the radical end of the environmental movement has come to represent a revolutionary counter-hegemonic group that fights against the abuse of the natural environment and for a participative democracy. However, in terms of its nomenclature, it can be seen as a group of individuals which studies the interactions between organisms and their environments. In this framework it shares a common space with discipline of ecology which is a science that studies this same area. Ecology also has its radical side political side known as ecologism. However, the idea of counter-hegemonic ecology is also a relatively new and non-essential aspect of the science.

From its outset ecology was a discipline that was based on the assumption that Nature was a passive system for humans to exploit and formed with the mission of scientific extraction of resources, not the reverse which has been vociferous in the growing threat of the destructive nature of the human economy on the planet's natural and social spheres for which it is now known for. Its recent arrival to the forefront of the sciences can be associated with the headlines on its object of study. For in today's modern world, the powerful imbalance of technological society on its environment—cultural, political, and environmental—has come to represent a massive alteration of the magnitude never before seen on Earth in historic times.

Historically, the study of organisms and their environment could be seen as implying a reductionist method of the instrumentalist programme. For at its beginnings ecology focussed on subduing the wild and finding scientific means for the extraction of natural resources. Peter Bowler, a historian on the natural sciences, states that in its early form, ecology was:

... influenced by the traditional link between science and the assumption that Nature was a passive system for humankind to develop for its own benefit. The study of relationships was just one more way of refining our ability to dominate the material world. (1992, p. 504)

As an evolutionary law, then it was upheld to serve a dominating hegemonic function, "[early] ecologists were also attracted to economic models that depicted Nature as a system for distributing resources" (1992, p. 505).

The noteworthy example for our purposes of the thesis is the early ecological concept of sustainability. Historian of high modernism, James Scott,[168] finds that the actual word "sustainability" originated within the forests of Europe (particularly Germany) during the eighteenth and nineteenth centuries. His study shows that with ever increasing pressure upon the woodlots by the burgeoning local populations, the lumber industry had to come up with a system of replanting the cut timber to continue its livelihood. So more than just cut logs, the woodsmen used scientific methods to vigorously study the biology of the tree and soils, and through these techniques began replanting and replacing the fallen wood. The fruits of their labour enabled the lumber trade to maintain what was termed as a scientific and "sustainable" forestry.

Thus at its conception, in the forests of Europe, sustainability via scientific forestry held the basic notion of the instrumental programme, under the Heideggerian notion of "Enframing"—the recovering of lost resources for humans to reuse in the future. However, while this represents the conservative side of ecology, there remains a much different reading implying a much greater level of complexity at the more radical side of the continuum. When holistic ecologists and scientists examined the forests, they realized that they turned out to be much more than trees. Within a few generations, Germany's engineered replants were no longer seen as forests. Trees grew neatly in order, and were pruned and shaped for the industry's demand much like is done today. However, these treed lots were no longer forests; rather, they were farms.

What was lost in translation between the two terms were essential elements to the earlier forest, including the wildlife, soils, canopies, variety of trees, plant life, and, local populations which once depended on the actual forest, to mention but a few aspects. So while the trees used for human consumption came back in force—to a lesser or greater degree, depending on tree species, fertilization, use of pesticides, pruning, and other technological means—, the actual biodiversity of the tree farm had been altered from its original state as a forest. Radical

[168] For more on this, see Scott (1998). Scott's focus on "seeing" like a (high modernist) state dovetails our discussion appropriately here. Scott argues the state's vision is limited to the conscious, the rational and the abstract. This is what the continental philosophers like Foucault have referred to as the "objective gaze." The immediate reduction of an object into its modern form leaves us with what we covered in the introductory chapter to this thesis, Heideggerian "Enframing" and Marcusian "One-Dimensional Society." Another worthwhile brief read on the history of sustainability comes from Davis (no date).

environmentalists and deep ecologists,[169] noting that there was more to the Earth's ecosystems than that was understood and needed by mankind—or Enframed, as Heidegger put it—, pushed evermore for a greater model of understanding which has veered from a strict causal model to a complexified, holistic model.

The trip would take close to a century. Bramwell states that the slow transformation had everything to do with the contextual bias of its scientists who were primarily urban and educated western elites who had to borrow "political labels from time to time" (1989, p. 3). Bowler concurs, writing that the rise of ecology and particularly its political counterpart, ecologism, to prominence "was obviously due to changing values in society at large, but it was also made possible by changes within biology that focused attention onto the relationship between population and its environment" (1992, p. 503).

Another main reason for the radicalization of ecologism comes from the alienation felt by the post World War I (WWI) generation. The brutality of the war showed that complete earthly destruction was, in fact, possible. It gave a sobering image of the finiteness of the planet's resources, particularly to fringe groups including the Marxists, anarchists and students, many of which went on to form the early Non-Governmental Organizations (NGOs) that protected the environment like Greenpeace.

In the direct post-war, the policy of scientific management would be another environmental aspect that would grow with political proportions and discriminatory modalities. These policies were spurned by the instrumental camp in biology which searched for a means of extracting the most out of nature for the least amount of effort and expense. Even so, Bowler states how the effects of the principle of "maximum sustainable yield" were often framed politically. He writes about how the application of these limits had social and political implications. For example, in the case of Californian fishing Bowler states that when fish populations had become at risk on the California coast, "the rules were deliberately framed so that they would

[169] For more information on deep ecology and radical environmentalisms please refer to Light & Katz (1996).

apply most stringently to the fishing techniques used by Chinese immigrants" (1992, pp. 506-507).

While the environmental movement from which this modern sense of the counter-hegemonic technocracy would emerge had been around for decades, it found its strongest footing with the 1962 publishing of Rachel Carson's landmark book *Silent Spring*. Written by an expert biologist who had been the Editor-in-Chief for all US Fish and Wildlife Service publications, the text researched the lethal effects that agricultural pesticides were having on the environment. More than just outline her investigations on toxicological, ecological, and epidemiological issues, the text opened the wounds of Western technocratic policy since the war and exposed them to the general public; for unlike most scientific documents, Carson's book was written for the lay reader and in form and function pushed for a radical democratization of knowledge through an ecological critique.

Silent Spring's sharp critique razed the development camp's ideology that had been the core of Morgenthau's emotive World Bank speech less than twenty years previous. Carson's research showed that not only did the environment *not* have infinite capacity to absorb pollutants; these toxins were being found at absurdly high levels amongst animal species, including humans.[170] Because of the strength of the text and its immediate impact on the times, Rachel Carson is often heralded as the mother of the modern environmental movement. At the same time *Silent Spring* also ushered in a poignant, grass-roots critique of the technocracy that ruled modernity—the emergence of multinational, science-based giants, like Monsanto and other chemical companies.

The April 3, 1963 Columbia Broacasting System's television series *C.B.S. Reports* presented the program "The Silent Spring of Rachel Carson." In it, she stated the fundamental imbalance of the modernist program put forward by the multinationals, which forced the public to pay for the damage of the private sphere:

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[170] This section has been taken from the International Institute for Sustainable Development (no date).

It is the public that is being asked to assume the risks that the insect controllers calculate. The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts.

We still talk in terms of conquest. We still haven't become mature enough to think of ourselves as only a tiny part of a vast and incredible universe. Man's attitude toward nature is today critically important simply because we have now acquired a fateful power to alter and destroy nature.

But man is a part of nature, and his war against nature is inevitably a war against himself. The rains have become an instrument to bring down from the atmosphere the deadly products of atomic explosions. Water, which is probably our most important natural resource, is now used and re-used with incredible recklessness.

Now, I truly believe, that we in this generation, must come to terms with nature, and I think we're challenged as mankind has never been challenged before to prove our maturity and our mastery, not of nature, but of ourselves. (No date)[171]

Carson, like many of the environmentalists who would follow, fought a participative democracy and the breaking of the social-natural dichotomy fundamental to modernity. The resulting polemic played off amongst grassroots environmental advocates, Big Business groups, national governments—particularly in the USA where the book was focused—as well as the United Nations.

By 1963 the International Biological Programme (IBP) was initiated by Sir Rudolph Peters, President of the International Council of Scientific Unions (ICSU) and Giuseppe Montalenti, President of the International Union of Biological Sciences (IUBS). The topical, ten-year study analyzed the environmental damage and the ecological and biological mechanisms through which it had evolved. Unlike previous studies that had been undertaken by the until-then instrumentalist science of ecology, the large body of data that emerged from this undertaking laid the foundation for a science-based ecological environmentalism.

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[171] The transcript comes from the Rachel Carson Organization's official webpage which offers a wide account of her work and writing. Another important source is her five books published, including the classic *Silent Spring*.

The ecological movement grew and their protests became more and more main-stream. Four years after the inauguration of the IUBS study, a small group of US Attorneys won a court case against spraying of DDT on Long Island marshes. They formed into the lasting formed the Environmental Defence Fund—now, Environmental Defence—which "is dedicated to protecting the environmental rights of all people, including future generations. Among these rights are clean air, clean water, healthy food and flourishing ecosystems" (no date)[172]

While the momentum for the environmental movement had started, it was arguably the 1968, the Apollo 8 mission that would serve as a conclusive beginning to the lobby as its photograph of the Earth would become etched in the public consciousness for ever.[173] The iconic image of a fragile and fascinating blue and green marble floating in space caught the public's eye, and would remain their eternally.

This same year, Paul Ehrlich's published his book, *Population Bomb* (1968) which we have examined in chapter 1 focused on what the relation amongst the factors of an exploding population, enormous resource extraction and the ensuing environmental problems. While the book would do little to curb the population explosion—the numbers would double between 1950 and 1987 from 2.5 billion to 5 billion people—it provided the opening of an important debate within the environment movement which we will retake later on in this sub-section. The United Nations also got involved in the polemic with their Intergovernmental Conference for Rational Use and Conservation of Biosphere which began discussing the idea of ecologically sustainable development. The General Assembly also passed the motion of a conference on the Human Environment in Stockholm, set for 1972.

By 1969 the Earth saw the rise of some of the great environmental NGOs, including the now powerful Friends of the Earth (FOE) which has been dedicated to a radicalization of democracy through the ecological approach. Its mandate has been focussed on protecting the planet from Environmental degradation, preserving biological, cultural, and ethnic diversity, as well as democracy in decision making. By this time of its development, the ecological movement

[172] For more information check Environmental Defense (no date).
[173] Several authors point to this moment as being a crucial event in the timeline. For more information please see Gore (2006).

was in full swing, creating the first Earth Day celebration by 1970. The event coincided with the birth of Nixon's Environmental Protection Agency (EPA), a federally funded entity with the mandate to clean up the environment[174]

Within a year of the first Earth Day and the founding of the EPA, as we saw in earlier in this thesis, ecological activists from Canada and the United States would begin protesting nuclear testing off the coast of British Columbia, forming the formidable Greenpeace group whose focus was to stop environmental damage through civil protests and non-violent interference, a style that would mark the environmental movement for decades to come. The year also marked the Founex gathering in Switzerland where a group of experts called for the integration of environmental and developmental strategies. Its conclusion, that many of the environmental problems that the earth was facing were taking place in underdeveloped countries and were a result of poverty. And the link between these two factors—pollution and poverty, the environment with the social—was one that Indira Gandhi would restate famously in Stockholm a year later when she said that "poverty is the greatest polluter."

By this time, numerous organisms on human and natural environments had been massaging the idea of environmental conservation into form. While the NGOs like Greenpeace and FOE had instituted a viable confrontation to the technocracy backing big business and governmental interests involved, each time the solution erred towards the old-school definition of development. The United Nation's 1972 Conference on Human Environment in Stockholm brought the industrialized and developing nations together to delineate the "rights" of the human family to a healthy and productive environment. It thus offered the perfect venue to discuss the idea of sustainability; not surprisingly, the event was slighted by the Group of 77 and the Eastern

[174] The EPA's mandate states the following:
The establishment and enforcement of environmental protection standards consistent with national environmental goals... The conduct of research on the adverse effects of pollution and on methods and equipment for controlling it; the gathering of information on pollution; and the use of this information in strengthening environmental protection programs and recommending policy changes... assisting others, through grants, technical assistance and other means, in arresting pollution of the environment... assisting the Council on Environmental Quality in developing and recommending to the President new policies for the protection of the environment. (EPA, no date)

bloc who refused to participate, calling the meeting neo-colonial and condescending the program as an "eco-agenda."

Yet the ecological movement had by now hit its stride. Published at the time of the 1972 oil crisis, the Club of Rome's groundbreaking *Limits to Growth*, written by Dennis and Donella Meadows hit a resounding nerve, selling some 30 million copies world wide in 30 different languages (it became the most sold book in the history of the environmental movement). The authors took a hard stand against the industrialized countries proposing an enlarged-scale economic development by linking results of five variables—population density, industrial production, foodstuffs, raw material reserves and environmental pollution. Its controversial conclusions stated that there was a catastrophic shortage of raw materials and a rising peak in environmental pollution; it predicted dire consequences if growth was not slowed. Predictably, it too was rebuffed by the big players of the development game as Neo-Malthusian and elitist.

Within a decade, the International Union for Conservation of Nature (IUCN) published their *World Conservation Strategy* whose threefold aim was 1) to maintain essential ecological processes and life support systems; 2) to preserve genetic diversity; and 3) to ensure the sustainable utilization of species and ecosystems. The document defined development as "the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of life" (IUCN, 1980, p. 18). Section 20, which was entitled "Toward Sustainable Development," identified the main agents of habitat destruction as poverty, population pressure, social inequality and terms of trade. It demanded a new international development strategy which addressed the interlinking problems of poverty, social inequality and market instability; however, like their predecessors, analysts of the times were quick to dismiss the document as "environmental" and "anti-developmental."

Despite the cool reception of these documents in the political sector, the ideas had begun to take root in the common consciousness, particularly hitting home during the oil crisis, and the concept of sustainable development in its basic form stuck. By 1983, the United Nations had responded to the public angst and tension and created the World Commission on Environment and Development (WCED) with the mandate to solve this stalemate. Over four years the

Commission reworked the IUCN's version of sustainable development into a working concept that sought to relinquish the world from poverty, inequality, and environmental degradation while creating a new era of economic growth—growth that was forceful and at the same time socially and environmentally sustainable.

Yet, the main driving forces of the WCED were almost identical to what Morgenthau had hailed as the reason for development almost 30 years earlier—widespread poverty, inequality, and under-development. To show their support for their predecessor's concept of development, the authors would go as far as taking Morgenthau's words from Bretton Woods as a title for the work, *Our Common Future*.

In the years between its commissioning in 1983 and publishing in 1987, the hole in the ozone layer was discovered, the International Council of Scientific Unions (ICSU) reported on the build-up of carbon dioxide and other greenhouse gases in the atmosphere, predicting global warming, and the IUCN held its Conference on Environment and Development in Ottawa, Canada, which loosely defined sustainable development as an emergent property reacting against the results of forty-some years of development which was based on the concept of resource stewardship.

By the time the Brundtland report was commissioned, the public arena had become vociferous in its want for ecological environmentalism. The environmental movement, while fighting for a better relationship between man and nature invariably had several different interpretations of how this would best be achieved. We have seen how Paul Ehrlich based the thrust of his argument in *The Population Bomb* on the graphic of exponential population growth within the fixed contents of a natural world, and concluded that since man was responsible for the imbalance of nature, the best way to minimize future contamination of the world was to control population. How he proposed to control population was another problem altogether, for the thrust of the argument was to place the onus on the people. Specifically since the poor of the world which Gandhi had pointed to—both internally to the U.S. and externally in the developing countries of the world—had the largest population growth rates, he suggested that the only way

to control people was through governments and these should enforce a cap on birthrates of these poor, a reading which was obviously met with much resistance.

On the other side of the spectrum, Barry Commoner, investigated the roots of the environmental crisis and came out with a profoundly different reading than his neo-Malthusian counterpart. Commoner's book, *The Closing Circle: Nature, Man and Technology* (1971) begins with a description of the four laws of ecology which he sums up as: 1) Everything is Connected to Everything Else; 2) Everything Must Go Somewhere; 3) Nature Knows Best; and 4) There is No Such Thing as a Free Lunch. Using these he showed that while the population of the United States had grown by 42 percent, pollution had grown by over 2000 percent in the 20 years between 1946 and 1966. The conclusion he made was that population growth—the people—had a relatively minor effect on the contamination of the natural world. Rather than a population bomb, it was a "civilization explosion:"

> People, and indeed their growth in number, are the source of the vastly elaborated network of events that comprises the civilization of man: the new knowledge of nature generated by science, the power of technology to guide natural forces, the huge increase in material wealth, the rich elaboration of economic, cultural, social, and political processes. (1971, p. 114)

Commoner, like Rachel Carson, pointed the finger at the industrial and technological transformation of the rural and urban landscape which had grown exponentially since the war. He stated repeatedly that modern science is poorly prepared to deal with the complexity of the ecosphere, writing, "The scientific method is closely bound to the notion of a singular cause and effect, unrealistic in the complex environment that we live in" (1971, p. 78). He took his stance citing John Galbraith's definition of technology as:

> ... the systematic application of scientific or other organized knowledge to practical tasks. Its most important consequence, at least for purpose of economics is in forcing the division and subdivision of any such task into its component parts. Thus, and only thus, can organized knowledge be brought to bear on performance.... Nearly all of

the consequences of technology, and much of the shape of modern industry, derive from this need to divide and subdivide tasks. (Commoner, 1971, p. 186)

Unlike Ehrlich's reading of the environmental disaster, and much like Carson's, to Commoner overpopulation was a political affair, for there was no direct link between population growth and pollution. Commoner suggested that the issue was far more complex and was best understood by breaking the traditional modernist division between the environmental and social, and realizing their inherent and necessary link.

> The environmental crisis is a sign that the ecosphere is now so heavily strained that its continued stability is threatened. It is a warning that we must discover the source of this suicidal drive and master it before it destroys the environment—and ourselves.
>
> Environmental deterioration is caused by human action and exerts painful effects on the human condition. The environmental crisis is therefore not only an ecological problem, but also a social one. (Commoner, 1971, p. 112)

Commoner also stated that:

> If, on these grounds, it is concluded that the private enterprise system *must* continue to grow, while its ecological base will not tolerate unlimited exploitation, then there is a serious incompatibility between the two.... In this sense, the emergence of a full-blown crisis in the ecosystem can be regarded, as well, as the signal of an emerging crisis in the economic system. (1971, p. 277)

As we have seen in our discussion on Feenberg, by the time *Our Common Future* was commissioned, the environmental movement had evolved into a continuum of choice between a repressive policy of increasing control over the individual or a democratic policy of control over the social processes of production and culture. In the former condition, the existing production system could be preserved along with all the injustices associated with it, for a prolonged period in spite of the environmental crisis. On the latter condition, this production system must be radically changed through the development of new forms of social control (Feenberg, 1999, p. 69).

This was exactly the fundamental choice that the authors of *Our Common Future* faced. Their decision to choose sides in the debate would affect the future of environmental and developmental change internationally since 1987 as we will shortly see

In a brief conclusion to this short history of the environmental movement as it evolved to the point of creation of *Our Common Future* shows that the result of the instrumental use of natural resources up to the 1980s spurred the necessity for a new perspective on the way we deal with our environment. The resulting reinterpretation, while much contested by the authorities, commercial powers and even the environmentalists themselves, has led to the exposure of an increasingly important rift between reductionist, positivistic scientist model to a more ecological and cybernetic approach emphasizing the need for diversified interpretations, a better understanding of the natural environment and a multi-generational time distribution, rather than the short-term one proposed by aging models.

As we can see, the political context has moulded the concept of the sciences every step of the way. By the late 1960s, the environmental movement would face a complete reversal. During this time, American anarchists and Marxists associated the environmental problems as part of their "alienation" and the grassroots turn-around began in motion. The environmental movement would revolve around a horizontal, collective structure favoured by the communitarists and those seeking participative democracy.

From the environmental debate the fundamental question—"what is democracy?"—thus emerges. This is what Feenberg brought up in *Questioning* Technology where he states:

> The environmental crisis, in short, brings not peace but a sword. And precisely for that reason it is not a unifying messianic force through which the human race could join in an ennobling struggle beyond the petty confines of history. Rather, it is a new terrain on which the old issues will be fought out, perhaps this time to a conclusion. (1999, p. 70)

This description of the problematic behind the discussion brings us immediately to the political scientists who put forward the keywords of the debate: representative versus participatory democracy. As we have seen so far in this chapter, a strong ecological proponent

would only accept participatory, as those who are affected by technological rule should participate within its realm, while the technocrat traditionally vies for the representative, arguing much like Plato in the Republic that only the ones who *understand* should decide. In the void between the two, the fight over democracy takes place.

Through the glass of some 20 years of history of the institutionalization of the term by the WCED and the UN, we can now begin to ask the crucial question: in the endless dialectic amongst environmental activists and business actors, common people and politicians for the universal definition of sustainable development, where were the compromises? Which side of the debate was co-opted? And most importantly, where is this document leading us?

4.2 Whose Common Future?

This sub-section investigates the premise of the Brundtland Report. It goes to ask two main questions: 1) why was the WCED commissioned? And 2) how were its mandates achieved? As a first approximation of the document it enables a picture of the association between the two crucial factors of environment and development and those that would work on the project to see where it would likely go. To do so let us examine the World Commission on Environment and Development (WCED) from its outset.

To begin with, the WCED was asked in 1983 by the General Assembly of the United Nations' Resolution A/38/161 to do three things:

1. to re-examine the critical issues of environment and development and to formulate innovative, concrete and realistic action proposals to deal with them;
2. to strengthen international co-operation on environment and development and to assess and propose new forms of co-operation that can break out of existing patterns and influence politics and events in the direction of needed change; and

3. to raise the level of understanding and commitment to action on the part of individuals, voluntary organizations, businesses, institutes and governments. (Cited in WCED, 1987, p. 356)[175]

To do so, Chairman Gro Harlem Brundtland, then Prime Minister and former environment minister of Norway, was asked by the Secretary-General of the United Nations, Javier Pérez de Cuéllar, to gather together a group of individuals to complete these mandates.

Brundtland discusses the charge, "Due to the scope of our work, and to the need to have a wide perspective, I was very much aware of the need to put together a highly qualified and influential political and scientific team, to constitute a truly independent commission" (1987, p. xii). Brundtland goes on to discuss the kind of people that she hand-picked for the job. She stated the need for scientists and politicians to enable "objectivity and independence," just as we saw in the development chapter and the theoretical section which examines the intersection of Critical Theory and Science and Technology Studies (STS). This detail shows how from the get go, the Brundtland Commission would take the path of the positivist, technologist hegemony, by enrolling members from the socio-political group that the environmentalists had been critical of since the Greenpeace protests against the Atomic Energy Commission (AEC) and before.

The goal was independence (p. xii) as Brundtland states. Throughout this thesis, we have seen the interest-laden nature of science and of course politics, both which have, in fact, worked independently from mass control to a large extent throughout modernity to offer a state of independence. What could be more independent than a group of technocrats which work with a "neutral" science that atomizes its object—in this case, the complex environment—into workable units, free from the heavy, interwoven, superstitious and "unworkable" traditional approaches?

Brundtland goes on to say of the Commission:

> We come from widely differing backgrounds: foreign ministers, finance and planning officials, policymakers in agriculture, science and technology. Many of the Commissioners are cabinet ministers and senior economists in their own nations, concerned with the affairs of those countries. (1987, p. xii)

[175] For the entire text of the charge, please turn to WCED (1987), pp. 356-357.

Again, in terms of what we have seen throughout this thesis, the more adjectives with which Brundtland describes differences, the less difference we can see amongst these members. Brundtland's criteria all point to one final conclusion: all come from a globally bureaucratic, technocratic, urban meritocracy.[176] The membership itself was also skewed towards the technocized North; half were from developed nations, and there was not a single member of the non-scientistic elite, despite the fact that the UN's work on world population as we have seen in the previous chapter cites the large majority living in "developing nations," and members of non-urban populations.

Thus, the question remains: When looking at the two issues of environment and development as stipulated by the WCED mandate, how would these people conceive their complex relation? What kind of "mandate for change" (WCED, 1987, p. x) would they envision? This, as we have seen since the outset, comes down to questioning the concept of agency and thus the concept of democracy for the lower-end actors in the field. Control of the local commons scattered over the world was to be taken over by whom—the UN officials or the local peoples distributed throughout the planet? The development project with its scientifically objective management, penchant for private property and its "universal knowledge" from the think tanks on the outside had proven disastrous. What kind of local participation and local knowledge would be added to the mix?

With the two variables of development and environment hanging in the balance, the Commission's global elites would make several slight but important changes in interpreting two of their mandates. Brundtland reformulates the first to say the following: "to propose long-term environmental strategies for achieving *sustainable development* by the year 2000 and beyond" (1987, p. ix, emphasis is mine).

However, clearly this was not the actual mandate as we have seen at the beginning of this section. The concept of sustainable development was coined by the Commission, and thus

[176] Baumann (1998) discusses this position, stating, "all dominance consists in the pursuit of an essentially similar strategy—to leave as much leeway and freedom of maneuver to the dominant, while imposing the strictest possible constraints on the decisional freedom of the dominated side" (p. 69).

was not and could not have been part of its mandate. The term sustainable development was *the innovation* that the WCED created, not the other way around. In fact, as we recall, they were asked to try and find a new way of interpreting the environment and development. Neither was explicitly prioritized *a priori*; rather, they were to be considered with the other in mind.

What the Commission's first interpretation shows is that the concept of the environment would be reduced from what we have seen in the environmentalists' internal debate to represent but the *actual place we live* and its resources, while development as such would be kept—although the Commission did expand on its new meaning. Brundtland states it clearly, "... the environment is where we all live; and 'development' is what we all do in attempting to improve our lot within that abode. The two are inseparable" (1987, p. xi). But conceptually, the environment was the weaker—actually an operationalizational factor in the Marcusian sense—variable which transformed into the concept of sustainability, while development remained as the economic paradigm albeit, now universalized since it is, according to the Chair of the Commission what we *all* do.

The Commission's second mandate also suffered some tampering with. Brundtland restated it:

> ... to recommend ways concern for the environment may be translated into greater co-operation among developing countries and between countries and different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment and development. (1987, p. xx)

Here, the Commission assumes the perspective that development is a series of progressive stages, and thus necessary. For it states that there are countries *in different stages of economic and social development*. As we have seen in earlier chapters of this thesis, this perspective is a direct offshoot of Rostow's historically dysfunctional perspective on development, that there are a certain number of identifiable stages which one progresses through. This puts the Brundtland Commission back at the same, anachronic starting point as we had with convergence

theory, some four decades earlier. What this signifies is that at its beginning, there is no essential questioning of the positivist position by the brokers of this Commission.

What results from this interpretation of the scene is a bounding, or the drawing of borders around the realm of technology—in terms of its negative impacts—but not a revolution in its essential functioning in the design of the technologies. This is what we saw in Marcuse's work on the theory of operationalization. And the model that is taken is the trade-off model, not the layered approach which technology makes possible, as described by Feenberg who states:

> Because economic culture is not fixed once and for all, and because a population's socially relative goals may be served by a variety of technological means, it is possible to link ideals and interests in a progressive process of technical change. In that process potentialities that appear first in ethical or ideological form are eventually realized in an effective consciousness of self-interest. This link makes possible a radical democratic politics of technology. (Feenberg, 1999, p.99)

The Brundtland Commission would go to work for four years. Over this time, Brundtland states that they visited five continents. To be specific, 45 days of meetings took place outside the Europe-based WCED's home offices; half of these happened in developing countries and the former Soviet Union the other half in developed nations. To be precise, these meetings took place over four days in Jakarta, Indonesia, seven days in Oslo, Norway, six days in Brazil, 10 days in Canada, seven days in Africa, Six days in the USSR and a working week in Tokyo.[177]

Brundtland finishes her forward, stating that, "...thousands of people have contributed to the work of the Commission, by intellectual means, by financial means, and by sharing their experiences with us through articulating their needs and demands" (1987, p. xv). The financial numbers are not available; however, a list of those involved appears in the back of the book. A quick look through the acknowledgements shows a long list of governmental officials, university students, alongside the major transnationals like atomic agencies and chemical producers associations, as well as a handful of NGOs and individuals, several of which seem likely to be peasant farmers.

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[177] For actual dates, please see WCED (1987), p. 359.

Brundtland concludes her introduction stating:

> The downward spiral of poverty and environmental degradation is a waste of opportunities and of resources. In particular it is a waste of human resources. These links between poverty, inequality, and environmental degradation formed a major theme in our analysis and recommendations. What is needed is a new era of economic growth—growth that is forceful and at the same time socially and environmentally sustainable. (1987, p. xii)

Here, at the end of her introduction we come upon the basis of the work: more economic growth (the Commission, using their scientific models, will later prescribe quantifiable amounts as we will see) that is bounded by environmental and social sustainability. Brundtland's use of the concept of "human resources" is revealing. Where else do we see the term resources adjectivized by the noun human, but in developmental economics? In the eyes of first-world economists, humans who are living in the developing world who are not actively greasing the wheels of the economic system are considered to be wasting away, or worse, dangerous and subversive. Brundtland implies that they could be better used as if to describe them as a primary resource which could be better transformed through more thoughtful centralized economic planning. This is not surprising as it is the explicit focus of the Brundtland Commission to do just this.

And how is this project to be fundamented? In a system devised by the hegemony, it comes as no surprise that the Commission would state on page 2, that *Our Common Future* is based on nothing less than the "latest and best scientific evidence" (1987, p. 2). Clearly, we have seen that science is not value-free. In fact, until the present, and through the works of Hughes, Winner, and even Heidegger, it has shown its tendency to favour the ruling classes despite its veiled "objectivity." Certainly we have seen plenty of the argument that shows how historically science has rarely promoted mass participation, but rather an elitist and exclusive group. We will investigate this further in the following section.

Feenberg's work, amongst numerous others, has shown that the modern technical code is inherently authoritarian. In the case of the Report, the WCED did hold meetings on only 22 days over the course of four years in so-called developing countries, albeit only 10 days and

those were all spent in countries where the World Bank had supported undemocratic governments, like Brazil and Indonesia. Changes were commissioned by the technocracy in the UN, to an equally technocratic group of elite global scientists and politicians. Nothing changed in the essence of the concept of development. The problem of this representation is well summed up by Feenberg who states, "Representation, even at its very best, diminishes the citizens by confiscating their agency" (1999, 133), which resonates with Marcuse who stated:

> The absurd situation: the established democracy still provides the only legitimate framework for change and must therefore be defended against all attempts on the Right and the Center to restrict this framework, but at the same time, preservation of the established democracy preserves the *status quo* and the containment of change. (1969, p. 68)[178]

From this investigation of the introduction to the Commission we can see that the creation of such an agency as the WCED was based on the paradigm of the Ehrlich side of the environmental debate, which retains the *status quo* and treats technology as fixed and unalterable and ends up treating nature as a social object wherever it is subject to technical control.[179] As we have seen, this group believed that technology dictates a vertical structure to support it—the established democracy. How much room would they leave for the lower end actors to manoeuvre with the domain they created?

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[178] In *An Essay on Liberation* Marcuse investigates how the capitalist economies are based on the unfair system of Law and Order, which simultaneously perpetuates the system and forces the radical opposition into necessarily illegal acts:
For it is precisely the objective, historical function of the democratic system of corporate capitalism to use the Law and Order of bourgeois liberalism as a counterrevolutionary force, thus imposing upon the radical opposition the necessity of direct action and uncivil disobedience, while confronting the opposition with its vastly superior strength. Under these circumstances, direct actions and uncivil disobedience become for the rebels integral parts of the transformation of the indirect democracy of corporate capitalism in to a direct democracy [which he writes in a footnote as: "Direct Democracy": in modern mass society, democracy, no matter in what form, is not conceivable without a system of representation. Direct democracy would assure, on all levels, genuinely free selection and election of candidates, revocability at the discretion of the constituencies, and uncensored education and information. Again such a democracy supposes equal and universal education for autonomy.] in which elections and representation no longer serve as institutions of domination. As against the latter, direct action becomes a means of democratization, of change, even within the established system. (1969, pp. 68-69)

[179] Feenberg (1999) discusses how via this lens, state officials look at the population problems and fix it immediately with a biological control. Thus human reproduction can be manipulated through voluntary contraception and involuntary sterilization.

Twenty years later, the definition as posited by the Brundtland Report remains the most used and resourced definition of Sustainable Development. Yet, as it promotes itself as a "global agenda for change" it seems at least intelligible to find out which languages the document has been written in. While the only official copy is in English, it has since been translated into 13 languages. All of which originate from so-called developed nations, except arguably Brazilian Portuguese.[180] The Chinese whose population counts for at least a quarter of world population would remain completely excluded, so were pre-colonial languages of the Indians, Africans and Americas.

Access, then, to the "global agenda for change," in an "era in the history of nations when there is greater need than ever for coordinated political action and responsibility" (1987, p. x), key elements for the future of mankind on a global level, has been reduced to just over a dozen European languages and Japanese, most of which have been used in colonizing much of the south. The fact is representative of whom the Commission and the United Nations have steered this document towards, an urban elite, capable of speaking a high-level of academic English, or other "developed" world languages which believe in the objectivity of science and the efficiency of the English language to solve the technical problem.

We now have an idea on the modalities or technical background of the workers of the Commission and their views on the interrelated issues of technology, development and the environment. Our next step is to visit the syntax of sustainable development to see how this translated into the powerful phrase that the WCED came forward with and have an impression on how the modalities inherent within those working on the project were translated into the concept of sustainable development and filtered into its technical code.

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[180] According the publishers at Oxford University Press, who hold the publishing rights on *Our Common Future*, they have sold the rights of the book to Swedish, Japanese, Danish, Polish, Hungarian, Spanish, Indonesian, German, Portuguese (Brazil), Portuguese, Bulgarian, French, Finnish, Russian, Turkish, Dutch, Hebrew, Icelandic, Norwegian, and Czechoslovakian translators. I will not visit the concept of cultural colonialism through language. However, for those interested following this discussion, numerous scholars have investigated the concept; please turn to Scott (1998) who covers the subject well. In the particular case of sustainable development, the lack of translated material has been a matter of due concern. For example, in Spanish, the translation of sustainable to "sostenible" or "sustentable" have been offered with varying amounts of consensus.

4.3 Sustainable Development: Concern or Control?

We have now seen a couple of telltale signs that point to the politization of the terming of sustainable development: at its outset was controlled by a group of high-ranking technocrats whose mandate was to create a global agenda for change. The rationality that they would employ was "the latest and best science" (1987, p. 2) which validated the credentials of a modern, representative technocracy. As Brundtland states, "a call for a common endeavour and for new norms of behaviour at all levels and in the interest of all" (1987, p. xiv). The Commission's 22 scientific and political "specialists" had been chosen to speak for and represent the world's billions of lay-people. This position was justified due to the universality of the language of science that they all spoke. And the message of these authorities would be passed along to the lay-people of the world in a way that could be described as paternalistically: it would be translated to what the Commission called "the young" through its "teachers" (1987, p. xvi), from the languages of the dominant hegemony to the languages of the local authorities.

As we have seen in the section on the theoretical framework, this scenario is worthy of a Marcusian analysis. We can recall that he begins his work on the problematic of one-dimensional society stating that there are certain basic tendencies which undermine the foundations of potentially revolutionary traditional culture, chiefly the repression of all values not validated by the "prevailing forms of rationality"—that is to say the scientific-technological one. The consequence of this is the loss of genuinely radical critique outside the pre-established boundaries of the dominant thought pattern. This was translated into what he pinpointed what was for him one of the essential problems of technology: that technological rationality was indeed political rationality. It was political in the sense that the boundaries of societal questioning were reduced to mere operations of efficiency—that the output or inputs could change—but not the operation itself. Radical thought disappeared in the folds of an operationalized fix.

The Brundtland Commission's pushing of a single global solution to the complex question of combining the twin factors of environment and human development is the stepping stone to the end of anything but technological thought. As each community has for centuries dealt with these issues in a localized way, the sudden hegemony of a single, scientific, unified thought has

reduced the potentially revolutionary questioning of the solution to an empirical survey of its effectiveness. The Brundtland Report then pretends to be a universal technical solution—essentially a recipe—for a transcendental problem found in an endless array of complexified localized settings.

We have seen how Marcuse's three observations—the integration of the proletariat, the stabilization of the system, and the demise of the left—affected the transformation from two- to one-dimensional society. Likewise we can see how the WCED worked to achieve the same result, but with a different mix of factors. The Commission explicitly integrated the proletariat—that is to say the revolutionary environmentalists—by including—albeit in a selective way as we have seen above—their environmental platform. They "stabilized" the system via streamlining the consensual regulations and applying them systemically throughout the global domain. The result, as Marcuse would have seen it, was a fragmentation of the environmental opposition—the diffusion of any qualitatively difference of opinion. The move would alienate the hard core revolutionaries from the moderates, who were likely to rest contented at the idea of co-option, without looking into the fine print of the accord, which was to be expected, for who would be able—let alone interested—to read a four hundred page diatribe, as it was written in an exclusive scientific tongue in a dozen or so different European languages? No wonder, the simplified one-line definition of sustainable development, "to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 8) is the most used part (and the least understood) of the entire document.

To Marcuse, the idea of a unified, global solution to a problem so complex and local is absurd. The only way to come up with such a self-help plan as the WCED was commissioned to do is to oversimplify the contingencies of its mandate into a technical, operationalized solution that ignored locality and presumed a single technical rationality, and a simplified, *a priori* understanding of the environment and the concept of development.

This meant the revolutionary substantive universals basic to questioning would be reduced to formal universals. What *ought* to be for a happier, freer relationship with our environment was reduced to what *is* possible under the scientific paradigm, and what *was* written

by these authors and collaborators. In the case of a scientist hegemony that meant the revealing of the measurable empirical "dimension" would now stand for the "truth." What sustainable development—or any relationship between man and his environment—potentially could be, was replaced with what this particular idea of what sustainable development had stated.

The result, a hybrid between standard post-war economics and a modification thereof,[181] was a technical solution, as Marcuse would have called it. It replaced a former control of people and their environment—the development paradigm—with a "more pleasant form of control," on that explicitly stated it did it more pleasantly—that is the "sustainable" aspect of sustainable development. And, with the UN's powerful reach, this prevailing instance of technological rationality would spread to the developing world undermining the foundations of traditional rationalities and the cultures who offer the possibility of a radical critique of modernity's operationalized technological rationality.

4.4 The Syntax of Sustainable Development and the Language of Domination

To understand the UN proposal, it is crucial to understand the foundation of the term sustainable development as is described by the WCED document, *Our Common Future*. So for the purposes of this analysis, perhaps what is most apparent when opening of this "black box" of sustainable development is looking at its syntax using a Marcusian analysis which we will do in this sub-section.

As we have seen, Critical Theory and the social constructivists posit technology as a human construct, the result of a non-necessary battlefield of actors vying for control over the products of human labour and their definitions. Seen as such, words are also essentially a technology—especially when so much effort it spent on defining them as in the case of the WCED's sustainable development—and thus it could be stated that the very definition of

[181] At this point, beyond taking a Marcusian perspective on the technical aspect of this solution, it would be worthwhile to re-enter into the discussion of A. & H. Toffler (2006), who posit that lending to huge infrastructures is against the grain in today's modern economy. The World Bank programs hearken back to the idea of "Second Wave" economics, not the present knowledge revolution—the "Third Wave"—, which is "light," unlike the old-style development practices with their industrial-style bureaucracies, and their resultant massive, vertical and hierarchical institutions (p. 231).

sustainable development is value-laden and humanly controlled, a position that goes beyond the commonsense instrumental view of language. By taking this Marcusian viewpoint we are enabled an investigation into the world vision that has been constructed into the contemporary concept of sustainable development by the Commissioners of the WCED.

Marcuse sets this up in his battle against what he calls the "Happy Consciousness"—"the belief that the real is the rational and that the system delivers the goods" (1964, p. 84). For the Happy Consciousness believes that technology must be inherently good, as it prolongs life more than ever before. Language, we have seen is key to this powerful, but faulty argument. For technological discourse is deprived of the mediations which are stages in the process of cognition and evaluation. The concepts which comprehend the facts and thereby transcend the facts are losing their authentic linguistic representation. Subsequently, critical thought on the subject is lost.

As we have seen, Marcuse explains that the linguistic strategy of operationalism—to make the concept synonymous with the corresponding set of operations—considers the names of things simply indicative of the manner of their functioning. In the case of Sustainable Development, we see how there is an abridgement of the meaning. Marcuse's Critical Theory would consider the individual concepts development and environment as two completely separate universal substantives which stand for a continuum of ideas, theories, experiences and possibilities. In the context of the 1980s they had come to represent the polar opposite of the other as we have seen in earlier chapters of this thesis. The WCED was commissioned for the explicit purpose of bringing these two contradicting terms together.

What did these terms mean? Development, as we have seen in the previous chapter, can be read as many things. In broad strokes the continuum stretches between two poles. To the positivists it falls within the realm of the technology that has led us to the end of history at least in political and economic terms. Those employing a Critical Theory see it as synonymous with a modernist, divergent, hierarchical form of ruling the world through economic and technocratic means. Through the application of a technological rationality to the social sphere it has replaced a participative democracy with a technocratic, representative one. We have seen how the WCED's concept of sustainability comes directly from the concept of environment. As we have seen from

the Ehrlich-Commoner debate, at its most conservative side it denotes the place where we live. On the radical side, the environment goes far outside its ecological boundaries and represents a radical social reorganization to a participative democracy.

There is also an important change within the grammar of the words which opens up an important possibility for critique in their usage. The words used for the redefinition of development come straight out of the World Commission on Environment and Development's title. Note that here in the Commission's name the words are given equal footing. Yet once packaged inside their document as sustainable development, a major change occurs.

The combination of words in Our Common Future is made from two substantives: "sustainability" which comes from the environment, and "development," both which we have discussed in detail in earlier sections of the thesis. What is most surprising, that when offering the solution for man's age-old problem of overuse and widespread poverty is that the former, sustainability, gets reduced to an adjectival role, as it is transformed into "sustainable," modifying the true driver of the phrase, which is, of course, development.

According to the Brundtland Report sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 8). In concrete terms it was to look for long-term harmony amongst social, environmental and economic factors—also termed as people, planet, profit—despite their likely competition in the short term. As we have seen in earlier sub-sections of this chapter, much like its predecessor, post-war development, it intends to be a universal solution to poverty and inequality, a means to making the world's poor rich.

Despite the historic differences of the two terms, in the work of the WCED, the two are placed together as an *a priori* That is to say that the historicity of the debate over both the terms have been deemed "inseparable," and reduced to what the Commission have determined them to be, which is: "the environment is where we all live; and 'development' is what we all do in attempting to improve our lot within that abode." Yet as we have seen, *a posteriori*, the combination of the two has shed all of the substantive weight from these two universals, and left

them with a single, simplified, formal universal—the environment and development are now simply what the WCED says they are, and combined, they are sustainable development, period.

This appeals to what Marcuse calls the "Happy Consciousness" the belief that the rational is real and that the system provides the goods. The amalgamation of the two provides a technical cure, a recipe that can be followed so that the goods can be delivered. The strategy of operationalization of the two historically opposing terms turns these two names into simply describing how they function as we have seen in the previous paragraph. Such a simplification to two divergent ideas compresses the radical nature of these two terms and reduces the capacity of protest.

Sustainable development, then, as a term, abridges the meaning of these two terms from radical opposites to a functioning whole. Meaning to any other substantive quality other than that which is determined is closed.

In this example of analytic predication, the noun—development—forecloses on itself. It no longer can be seen historically, it is reinvented and is void of anything other than the operation of *what we do*, which of course is impossible to argue, for what we do, is simply what we do. Yet its operationalized meaning—"what we do in attempting to improve our lot"—has been formalized into a universal and now governs the total concept in an authoritarian and totalitarian fashion. Sustainable development, despite its inherent contradiction, is a declaration to be accepted, repelling any possible demonstration, qualification or negation of its codified and declared meaning (Marcuse, 1964, p. 87).

The result is both what Marcuse called a "glorification of the term"—the 400 page document, international aid programs, speeches by Bono, Gap t-shirts that save the world, and numerous World Summits with the greatest turn-outs of politicians and celebrities ever seen on the planet—and its immediate immunity against protest and refusal—for the means of protest is operationalized in the synthesis of the two terms. Together, they attest to an immediate improvement which allows for a Happier Conscience in the Marcusian sense. Discourse on the cognitive aspects—the substantive universals—of the two concepts is now seen as teleological,

redundant and subversive. In this new paradigm what you see is what you get—the truth is in the fact, and the fact is that development is now sustainable.

To bring this to a conclusion we can say that in the case of the predicate "development" and the adjective "sustainable," in their broadest, universal aspect both represent the possibility of what development and sustainability in themselves could be, which can be imagined at least through what they have been historically, as discussed in the previous chapters and what they could be in the future. That is to say that they are messy, complex concepts which connotate a wide continuum of possibility that defies simplistic definition. However, when you condense the two into a single unity, the result is a blocking of the transcendental function of universality built into both the noun and adjective as separate entities and configured into a new, operationalized whole. Radical critique is thus dropped for empirical functioning. And the possible, the "ought" is lost to what simply "is."

This is the language of a society which seeks to eliminate history, one defined by Marcuse as one-dimensional. It is a language that substitutes empty images for transcendental concepts and thus reduces the possibility for reflection, contradiction, dissent. It establishes and determines truth—in this case that development *is* sustainable. Whether or not it is true or not is *no longer* the question. That it is being done in operations cannot be denied because it has established that it is so. And it justifies itself through the action that it takes—in the case of sustainable development, in multi-billion dollar projects on all corners of the globe. The result is a redefinition of thought as such, and subsequently action. And, as Marcuse predicted, it has the traditions of the developing world caught in the crosshairs. Sustainable Development is by definition an export philosophy, part of the UN's global agenda.

4.5 The Brundtland Report's Sustainable Development

The Commission begins its argumentation by laying out the impressive facts of human overuse of its environment, massive poverty, and inequality at levels never seen before on Earth. The WCED reports that there are more hungry people on the earth than ever before[182] and their numbers are increasing along with those who cannot read or write, those without safe drinking water, and those without enough wood-fuel to cook and warm themselves. "Fortunately," the authors of Our Common Future state, "this new reality coincides with more positive developments new to this century" (1987, p. 1). To begin with, there is more food produced than ever before, and we are now empowered and intertwined with a technologic context that can disseminate information around the planet at the speed of light. These are both the result of a beneficial science "that gives us at least the potential to look deeper into and better understand natural systems" (1987, p. 1).

All this to say that in the end we are witnessing what Marcuse would call an absurd situation—a wealthy minority of people now live and rule in absolute comfort in the age of and land of plenty, well informed and conscious by their powerful information technologies of the multitudes who are starving despite food overproduction and dying from curable diseases not because the cures have not been found, but rather because they cannot afford the remedies. The Commissioners of the WCED state that there is no escape from this situation; accordingly this new reality must be recognized—"and managed" (1987, p. 1).

The situation of exacerbated inequality has been well documented by scientific and traditional sources. Few today would attempt to contradict or disprove the broadening environmental crisis along with its parallel social crises which we have examined in the previous chapter. For those looking for a solution, we have seen over the past few chapters that there are at least two distinct ways of approaching the issue. Feenberg has illustrated that bringing this overarching technology under the reign of democracy to serve the people is the key to a fairer, more equitable future for the majority at the bottom of the social pyramid. This was the original

[182] In 1980, there were 340 million people not getting enough calories to prevent stunted growth and serious health risks, a 14 percent increase since 1970 (WCED, 1987, p. 29).

thought of the environmentalists as we have seen with the Greenpeace activists and the work Commoner has done. The environmentalists at their most radical fought for a participative or deep democracy, one where technical decision making was open to public discussion and consolidation.

When tackling the environmental crisis, the Commission states that "The Earth is one but the world is not" (1987, p. 27). To achieve unity, it states we must unite via similitude, not diversity (at least not via diversity in thought). The way to redemption, according to the Commissioners, is by following their single, scientifically-proven and universal recipe to sustainable development: The concept of sustainable development provides a framework for the integration of environmental policies and developmental strategies—the term 'development' being used here in its broadest sense. The word is often taken to refer to the processes of economic and social change in the Third World. But the integration of environment and development is *required* by all countries, rich and poor. The pursuit of sustainable development requires changes in the domestic and international policies of each nation:

> Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future. Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment cannot be solved unless we have a new era of growth in which developing countries play a large role and reap large benefits. (1987, p. 40)

As we have seen with Marcuse and Feenberg, the WCED's idea of oneness takes the idea of central control as an *a priori* and necessary, with the United Nations and World Bank in the center of the power schematic. Its starting point is the macro view of the planet seen from outer space, a vision that they say may have "a greater impact on thought than did the Copernican revolution" (1987, p. 1). However, in reality, it is a question of perspective. When taking a micro view as is typical of the Critical Theorists, they would see this whole is composed of an infinite number of microcosms, complex, individual, messy and local.

The juxtaposition of these two views brings us back the same structure as the Ehrlich-Commoner debate. For by setting up with the macro view in mind, the WCED demands that there

be unity in its singular control through a technocratic and hierarchical power base, not—as the environmentalists have fought for—a participative or deep democracy. Commoner would say that only through the participation of a diversity of opinion and viewpoint, through the microcosms that make up the world, can there be a reasonable attempt at unity.

Thus we can now see the beginnings of which of the two ends of the environmental lobby the WCED was willing to incorporate into their "new" world vision. Of the two of the non-synthetic poles of the environmental debate that we saw in the chapter on Feenberg that ranged between the democratizing of the sphere to the centralization of control, they would pick the latter. By reducing the environmental interests to the environmental *a priori*, the WCED did away with the revolutionary and political aspect of the environmental movement. To understand this, we must remember that the subversive rationalizations of the environmentalists were born not in relation to the technologies *per se*, but rather to their distrust of the centralized, hierarchies that were operating technological infrastructures. In the case of Greenpeace, they fought against the Atomic Energy Commission (AEC). For the environmentalists, technology, as such, is not out of control. Rather it is the way it is managed which is out of control.

In the sense of Feenberg's Critical Theory, we can see that the environmental backlash that set off the reaction within the United Nations to create the WCED did come from within the system. Yet it was reduced in scope in a renegotiation with those involved in the Commission itself. The WCED co-opted the least radical and most hegemonically reinforcing aspects of the environmental movement. These were evidently political and non-necessary choices. The decision to reduce the environmental movement back into the realm of the environment and away from the social and political was made on a set of assumptions that considered development and central control fruitful. In Feenberg's terms, then, the Brundtland Commission would sideline the radical end of the environmental movement, and infuse the twin technocratic concepts of central control and economic development into the technical code of their Report. By doing so, they were able to diffuse the tension and lessen the possibility of revolution of the now somewhat co-opted environmentalists.

Marcuse's idea of repressive desublimation also comes into play in the WCED's navigation to a technical route which they called sustainable development. Poverty, as Marcuse predicted in 1964, would figure in getting the underdogs and revolutionaries to cooperate, essentially destroying the possibility of a substantially different more democratic technology.

This can be seen as the WCED cites the increase of relative poverty as one of the most important reasons for sustainable development. Not only are its numbers on the increase—with the veiled threat to those that do not obey the rule of the development-now-turned-sustainable-development game may suffer the very same consequences—it also is scape-goated as the enemy, taking from Indira Gandhi's 1971 statement in Stockholm that poverty is the greatest polluter.

> Poverty is a major cause and effect of global environmental problems. It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality. (1987, p. 3)

While certainly poverty has been created by the developmental project as we have seen in the former chapter, the former qualification, that it *causes* environmental problems is contradictory and ahistorical. The Report states that,

> Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down their forests; their livestock will overgraze grasslands; they will overuse marginal land; and in growing numbers they will crowd into congested cities. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge. (1987, p. 28).

While there have been some powerful and emotive arguments such as this on the deforestation of the Amazon and other basins by itinerant farmers, these arguments are often ahistorical, that is to say, they omit the precondition of poverty, that a landless farmer is typically an uprooted farmer—one that has been removed from his land through developmental projects, like the transmigrations forced onto the millions of poor farmers around the world that we covered

in the developmental chapter which are often forced off their land because of the enclosure of the commons and the commodification of land instigated by commodity-needy, rich countries.[183]

Thus, in its war against poverty—ironically, the same stipulation in the case for Rostowian postwar development which exacerbated the problem—the WCED proposes to provide the vast numbers of those living in abject conditions with an "improved quality of life" (1987, p. 43) by offering a technical solution to ending the problem:

> Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life.... Hence, sustainable development requires that societies meet human needs both by increasing productive potential and by ensuring equitable opportunities for all. (1987, p. 44)

To do so, it demands that what they call developing nations improve their production, in order to achieve full growth potential. Thus, their version of sustainable development "clearly requires economic growth..." (1987, p. 44). The first prescription of activity is economic growth:

> A necessary but not a sufficient condition for the elimination of absolute poverty is a relatively rapid rise in per capita incomes in the Third World. It is therefore essential that the stagnant or declining growth trends of this decade be reversed. (1987, p. 50)

Given the present birth rates in the developing world, "this would require overall national income growth of around 5 percent a year in the developing economies of Asia, 5.5 per cent in Latin America, and 6 percent in Africa and West Asia" (1987, p. 51).

Yet, as we have seen, the WCED standpoint does not envision any other kind of technology than that which exists—that is to say none that is radically and substantially more democratic or less devastating to the environment—nonetheless, they demand more of the same growth. Although we have already seen how the rich countries, in particular the United States of America and Europe contribute a disproportionate amount of fossil fuel waste for the size of their populations, the WCED demands more of the same for developing countries.

To temper this statement, the Brundtland Report acknowledges that the average person in an industrial market economy uses more than 80 times the commercial energy as someone in

[183] For more information on this, see Baumann (1998).

sub-Saharan Africa (*Our Common Future,* p. 14). Later in Table 1.2, it shows that the 26 percent of the world's population living in developed nations also use up 79 percent of the world's steel, 86 percent of other metals, 85 percent of the world's paper (p. 33). Yet at the same time it states that poverty is the greatest polluter—that is to say that the sub-Saharan African—particularly the poor one who owns no vehicle and lives in a shanty-town making less than a dollar a day—contaminates the earth to a greater extent than the North American. The statement is contradictory.

The WCED, empowered by its own stipulations, then offers development as the only choice for the future of the poor underdeveloped on the planet. Its implication of the use of natural resources obviously comes into conflict with quality of life; however, the Brundtland Commission claims to understand that economic growth always brings risk of environmental damage by increasing pressure on limited environmental resources, maintaining that policy makers:

> ... guided by the concept of sustainable development will necessarily work to assure that growing economies remain firmly attached to their ecological roots and these roots are protected and nurtured so that they may support growth over the long term."(1987, p. 40)

In fact, the Brundtland Report prescribes that any realistic global energy scenario must provide for a substantially increased energy use by developing countries to reach those of their developed and industrialized mentors (p. 14). Mathematically speaking, that would be the same as increasing the present global energy output by a magnitude of five. The authors of the Brundtland Report acknowledge that clearly the planetary ecosystem could not stand this—especially if this was to be done by using fossil fuels. To make up for this, they stand for an increase in the research and development of alternative energy sources as well as a cleaner nuclear energy program (pp. 14-15). Let us not forget that in the Brundtland Report's list of appreciation appendix, we find several atomic energy agencies cited.

To recapitulate, the WCED's project into the realm of a more equitable development pushes for the end of poverty for it is not only a result of the environmental crisis but a major threat to it. This is justified by the wave of data from the United Nations that shows the growing

numbers of the poor. In Marcusian terms it also works as a threat, as with this data comes the silent menace and sense of urgency for actors on both sides of the poverty line. For those of us on the rich side, it reinforces the common-sensical view that we must join the system or we will end up like "them." And for those on the other side of the line, it suggests that by following the prescriptions of the developers will lead to the end of destitution, although the statistics show otherwise. The simple logic ends in a brilliant tautology, solved by the only possibility is that the system delivers the goods, so the solution is either get on board or be destitute, even if neither of the statements are logical.

For the world's poor, the WCED points out that it would entail an increase of world energy by at least a fivefold amount. To do so, it promotes the use of atomic energy sources which—all their inherent dangers aside (remember, this was written during the immediate aftermath of the Chernobyl disaster)—are, as Hughes has shown, necessarily centralized, requiring an experts-only technocracy which by its very nature and secrecy is autonomous from public and therefore democratic rule—the very same technocracy that the Greenpeace activists and the environmentalists have been fighting against since the postwar. In fact, if we recall, the protests did take place against the AEC. The technocracy with its politically charged technologies of development—not technology *per se*—is system-building. In this instance it seeks to empower itself into the hegemony through a technology. From Hughes work and the WCED's prescription of nuclear energy and greater economic output, we revisit the uneasy conclusion that rather than create a more democratic world, the centralized technical and scientistic system that the WCED proposes entails an even more independent technocracy than the one fought against by the environmental lobby since its outset in the postwar. In a sharp twist of perception, it re-empowers the technocracy of the AEC that had been the earliest target of the environmental movement as the new solution for "our common future."

4.6 The WCED and the Environmental Debate

As we have seen, the polarity in the debate within the ranks of the environmental movement can be seen with the work of Ehrlich and Commoner. Both brought out the inherently political side of the debate, showing that it was about control, particularly about the twin political issues of population and pollution. Commoner argued that controls should be placed on the mega-industries that disproportionately polluted, and yet were not held responsible for their work. His was a proposal for a social control of the public. On the other hand, Ehrlich struggled for a control over the individual polluter, the population. The way to control this aspect of pollution is at its root—in the biological—for the population explosion was an avoidable biological process and its remedy could be implemented both through choice and through active governmental intervention.

The WCED approaches the issue like the latter of the two, biologically. In its section entitled *Policy Directions*, it states that:

> Urgent steps are needed to limit extreme rates of population growth.... Governments that need to do so should develop long-term, multifaceted population policies and a campaign to pursue broad demographic goals: to strengthen social, cultural, and economic motivations for family planning... (1987, p. 14)

Following the logic of Ehrlich's *The Population Bomb*, the WCED simplifies the issue into a biological process, treating society as a natural object ruled by deterministic laws and dismissing all the social, political and historical issues that blur into the issue of population. The Commissioners state that "the rapid rise in population has compromised the ability to raise living standards" (1987, p. 29). It points to the growing rates of population in developing countries, particularly in Africa as the "challenge" (1987, p. 55).

The Commission also posits a positivistic understanding of technology. It unilaterally promotes the continued export of technology to developing world countries, stating "the capacity for technological innovation needs to be greatly enhanced in developing countries so that they can respond more effectively to the challenges of sustainable development" (1987, p. 60). Only after the *a priori* necessity of the incorporation of modern technology and technocracy do they

consider "that the orientation of technology development must be changed to pay greater attention to environmental factors" (1987, p. 60). However, nowhere do they make mention of the political factors that this technology as we have seen throughout this thesis.

Despite the evidence brought up by Commoner and his supporters which back the claim that it is not the local poor, but rather the transnational corporation that challenges the environment to an extent never before seen before in human history, the United Nations takes this attack against the local individual and nation a step further. Beyond promoting regional population controls, it prescribes a proactive role to the transnational corporation. Rather than reduce its environmentally damaging output, the WCED suggests that these corporations have an educational role to play in their interactions in the developing nations, stating, "Transnational corporations have a special responsibility to smooth the path of industrialization in the nations in which they operate," since these countries "need assistance and information from industrialized nations to make the best use of technology" (1987, p. 16).

Until now we have seen in this section that sustainable development stands for the domination of the commons by a world government interested in controlling population and increasing production. As Feenberg has warned this control is fraught with dangers particularly because only the developed countries—and those participating in the technocracy at the WCED and United Nations—have the capacity to enforce their will. And. they do so via World Bank and other multilateral loans and lack thereof. These are the leaders who support the Zero Population Growth and Death Rate Factors that can coerce poorer nations into population control programs. The WCED thus provides a link to what Feenberg warns us of—a real transnational governing force *of* the developing nations *by* the developed ones (1999, p. 53); only the developed are the technocratic global elite, and the underdeveloped are the technically uneducated people of the development paradigm. In the choice between democracy and repression, in the case of population, the WCED, like the proponents of development a half century earlier, has chosen the latter.

In a sense, then, sustainable development can seem "progressive" but only under a special and singular cultural framework which defines certain elements as progressive values—in

particular, universal and centralized control over the economy and population. It is not in all possible frameworks that this would be regarded so. For example, in a world that prioritized the family, the environment and worker-run cooperatives, sustainable development would come across as overtly technocratic and backward. The WCED document then offers little surprise. Sustainable development does exactly what it states—it sustains the development project.

Chapter Conclusions

This section has showed that from by the early 1980s the concept of development was in need of a major rebranding. Nearly a half century of development economics had resulted in mass inequality, rampant poverty and violence, particularly in the lesser developed nations but also in a real way intranationally amongst rapidly diverging populations within the political boundaries of developing nations.

The environmental movement has been pushing for a revamping of the paradigm and the tension was felt at the level of the United Nations which decided to create the WCED to figure out a new solution for the millennium. However, as we have seen, the institutionalization of the radical environmental movement resulted in an unexpected twist for the environmental movement. The technocratic forces that they had been fighting against had partially appropriated their program. In so doing, they have reduced the scope of the movement to an entirely environmental—in the *a priori* form of the word (thus watering down the possibility for a critique on technocracy and a critical theory of technology)—argument. Subsequently, the technocracy at the United Nations has reduced the issue into a fraction of its earlier discourse, placated moderately radical populations and diluted the argument into an empirical discussion.

This is similar to what Marcuse argued when he stated that the system's political freedoms have lost their progressive function and become instruments of domination. The simplification and the transmutation of the idea of Reason which upholds the concept of Sustainable Development is based on a simplified world view. One that considers what is measurable as what is. By forcing this "universal" perspective on the people of the world via its plan of sustainable development, the WCED has covered up the ugly aspects of the history of

development, those that create poverty, destroy the environment and show an aggressive nature to fellow man and nature, by sustaining that these elements are *a priori* elements, part of human nature. And by confining the concept to empirical proof, and technological rationality, they foreclose on themselves as the truth. The essential has become the empirical.

This resonates with the original premise of *One-Dimensional Man*. Marcuse begins his book saying that there are certain tendencies in contemporary industrial society which engender a mode of though and behaviour which endangers the foundations of traditional culture. Chiefly these are the repression of all values, aspirations and ideas which cannot be defined in terms of the operations and attitudes validated by the prevailing forms of rationality—in this case, those stipulated by the WCED. Like the quote that leads off this chapter, he states that that which falls between the cracks of technological wisdom and traditional culture, is purposefully lost a technocratic hegemony. The result is the co-option of all means of qualitative critique, and the integration of all opposition into the established system.

Marcuse theorized the point that real change cannot be written by the Establishment in his *An Essay on Liberation*:

> For the world of human freedom cannot be built by the established societies, no matter how much they may streamline and rationalize their dominion. Their class structure, and the perfected controls required to sustain it, generate needs, satisfactions, and values which reproduce the servitude of human existence. This "voluntary" servitude (voluntary inasmuch as it is introjected into the individuals), which justifies the benevolent masters, can be broken only through a political practice which reaches the roots of containment and contentment in the infrastructure of man, a political practice of methodological disengagement from and refusal of the Establishment, aiming at a radical transvaluation of values. Such a practice involves a break with the familiar, the routine ways of seeing, hearing, feeling, understanding things so that the organism may become receptive to the potential forms of a nonaggressive, nonexploitative world.

> No matter how remote from these notions the rebellion may be, no matter how destructive and self-destructive it may appear, no matter how great the distance between the middle-class revolt in the metropoles and the life-and-death struggle of the wretched of the earth—common to them is the depth of the Refusal. It makes them reject the rules of the game that is rigged against them, the ancient strategy of patience and persuasion, the reliance on the Good Will in the establishment, its false and immoral comforts, its cruel affluence. (1969, p. 6)

To make the argument, we have seen that the Critical Theorists begin with destroying the concept of value-free science. Technological society is a world unto itself, and it threatens human freedom and individuality by integrating the proletariat, stabilizing the system and co-opting the revolutionary left and all forces of change. Through these three tacks, we arrive at what can be and has been perceived as the end of history—which is to say, in Marcusian terms, that we have arrived at the only state of possibility.

The case of sustainable development is an important example in this regard, for it stands at the crossroads of traditional and technological thinking. As we have seen in the above section, it challenges all non-scientific rationales, including the truly aesthetic. The scientist backing of sustainable development coincides with the totalitarian features of technologic society that Marcuse warned of. "As the project unfolds, it shapes the entire universe of discourse and action, intellectual and material culture. In the medium of technology, culture, politics and the economy merge into an omnipresent system which swallows up or repulses all alternatives" (1964, p. xviii). So in the place of traditional non-development, and even post-war development, technical society like the UN's version of sustainable development serves to institute more pleasant forms of social control—ones that offers the promise of not only making the whole world rich, but to do it without endangering the environment. It also asserts itself as a central truth, and is based on the end that it must and will spread to the less developed and even pre-industrial areas of the world.

The transformation as was pointed out by Marcuse is via positive thinking. Sustainable development offers a therapeutic treatment of universal concepts, reducing their historicity through a redefinition of them. We have seen how the Brundtland Report restates the range of

the concepts of sustainability and development by simply operationalizing and simplifying them into two separate but necessarily interconnected ideas—where we live and what we do. Under these circumstances, a qualitative challenge to the concept of either is difficult.

Linguistically, the WCED repackaged traditional development into a tautology. The noun development governs the phrase in an authoritarian manner, and together it becomes a declaration to be accepted. It repels negation and possibility, what Marcuse calls an aesthetic dialectic. In its totality, the term sustainable development ends in a false sense of unity. This harmony of contradictions is a hegemonic means of offering a concerted attack on discourse about the subject, as it promotes the "immediate identification of reason and fact, truth and established truth, essence and existence, the thing and its function" (Marcuse, 1964, p. 85).

Via this glorification of the findings of the report, the Brundtland Report has immunized itself against protest and refusal. It speaks to the people of the world in slanted and abridged meanings. It merely establishes an image—in this case of a development that cares—to a world population which is invariably caught or being caught in the net of market economy and technological society. Yet, as Marcuse states, one does not believe that the statement of an operational concept but it justifies itself in action—in getting the job done..." (1987, p. 103).

When examining the document under the lupe of Critical Theory, we can see that by misappropriating what was revolutionary about the environmentalists, the WCED ended up missing what was essential to the movement—the concept and practice of a radical, participative democracy. For the environmentalists were not against technology per se, but against the antidemocratic forces that ruled technology.

We have seen this through the example of Greenpeace which was never opposed to technology. In their work, they have used the highest media and even military technology available to spread their messages. In their early days they went as far as chartering a modern, military minesweeper(!), to fight an aesthetic war against the US Army. Rather than a back to the caves kind of romantic refusal to modernity, the protest took technology to represent a new form of politics that were participative and democratic. Modern society wasn't so much suffering from economic exploitation, but from technical domination (Feenberg, 1999, p. 104).

While the Critical Theorists like Feenberg have agued that technology is not just the rational control of nature; that both its development and impact are intrinsically social—a situation that undermines the customary reliance on efficiency as a criterion of technological development. The Commissioners working at the WCED refuse to see technology as substantially different than the commonsensical, instrumental view.

Despite the environmental movement's challenge to the rationality of the power structure which supports technology the WCED make no room for a democratization of technology. Rather than meet the challenge of what Feenberg calls the "subversive rationalization" of the movement, the dominant hegemony co-opted the form of the environmental movement, but without its revolutionary content. In essence, *Our Common Future* was a formalization of the United Nations' choice to preserve the existing production system, along with all of its injustices as opposed to radically change the system from within. Change would be in quantity, in boundaries, and in name, but not in the system of power itself to the extent that they would suggest that the transnational corporations and atomic agencies take a leading role in educating the poor of the developing world how to clean up their act.

GENERAL CONCLUSIONS

In this exercise of questioning the World Commission of Environment and Development's (WCED) version of sustainable development we have had to take several extensive side trips. The first was to understand the UN's concept of sustainable development as a technological artifact as was presented in the introduction. Here we showed that the UN's "global agenda for change" (1987, p. ix) which using the "latest and best scientific evidence" (1987, p. 4) was to both offer a normative designation and an administrative prescription to the issues plaguing modernity—a technology in the Marcusian sense. To reach this position a consensus—in the social constructivist sense of the word—had to have been made.

From this standpoint, we began by revisiting the cornerstone of science and technology studies, Martin Heidegger's "The Question Concerning Technology." And from this reading we quickly realized that to question technology was to question human agency within its sphere. While Heidegger offered a first approach to understanding technology, from there we visited Marcuse and Feenberg and saw that there are at least four ways of conceiving agency through technology—via the instrumental, determinist, substantivist, and Critical Theory paradigms. Each looked at technology through a cross amongst four variables: neutrality or value-ladenness on one side and autonomy or human-control on the other.

As we have seen with these authors, the positions are not prone to synthesis; therefore, the starting position one chooses in many ways predicts what the perspective will be of any democratic intervention with technology. We have visited that the commonsensical instrumental position, which sees technology as neutral and ready for human use is one that leaves us with acritical positivism and utopia—a liberal faith in progress. Determinists, who believe that technology is at once autonomous and neutral also separate the means and ends of technology, yet offer no opportunity for human control of it—it appears to exist in a sphere correlated but separate to man; it is merely invoked to help fulfill human needs. The substantivist position takes issue with the separation of means and ends, and considers the two inextricably linked. While exposing the value-ladenness of technological ends—and thus means—Substantivism offered at

first a critical approach to technology. However, by assuming an inherent autonomy, the position ends in an essentially acritical resignation to technology's determining and autonomous qualities; Heidegger's claim that "only a god can save us" is the logical endpoint of the result of that path.

Critical theory, the final position available in this set of variables navigates amongst these positions. We have explored its path via Feenberg and the Critical Theorists who have shown that technology is not neutral, nor is it a materialized form of efficiency, nor is it essentially any one thing, and nor is today's technology our destiny (as Marcuse called it, it is our fate, but not our destiny). Rather, they have gone to lengths to expose technology as value-laden, politically charged, and embodying the wills and morality of the dominant hegemony. Marcuse was the first to say that "Technological rationality has become political rationality" (Marcuse, 1964, xlvii), and with that, he and his followers showed how the ruling classes install their beliefs into the design of technological artifacts in the form of what Feenberg describes as "technical codes." Technology as such is *a posteriori*, a historical development, and is thus not neutral.

We have seen how Critical Theory believes in the interconnected nature of the means and ends of technology, yet sees the potential to infuse the contents of the means and ends of technology with democratic and beneficial qualities to humanity. Potentiality makes for a radical and revolutionary position, particularly when faced with three essentially acritical views on what could be considered perhaps the most influential and widespread feature of advanced modern civilization.

Agency of the lower end actor of the social sphere is a crucial factor in all of this for it is the cornerstone of modern democracy. For the question of who rules and who should rule is never far away. And in a society that has been technologically driven the odds are in the favour of a highly regimented technocracy. Critical Theory thus best counters the position of the modern authoritarian technocracy through its study of micro-politics and belief in potentialities.

Of the positions outlined above, we have seen that the instrumental theory is typical of modern governments, both communist and capitalist. They treat technology as subservient to values established in other spheres like politics and traditional culture. Yet alone, it is considered to have no inherent bias. Governments, and in particular metagovernments like the UN since its

inception also assume the socio-political neutrality of technology—what works here works everywhere, which is why we have seen the proliferation of the postwar developmental economy accelerate on a global scale. Furthermore, the instrumental position takes at face value the correlation of technology and efficiency. This is to say that the same measurements in all settings are usable. Thus technology is routinely employed to increase local productivity everywhere on a global level. This can be seen in the case of the post-war development we have investigated in chapter 3.

Given this take on technology, when environmental or other democratic activists get in the "way" of development, there is an immediate turn to trade-off models, ones which suggest that for more of one variable, you end up with less of another. In the case of the former, it often relates to more environment or democracy equals less output or efficiency of the technological model. Technology, seen through this lens is a kind of destiny, inescapable, immalleable. This, however, is a dangerous and misleading oversimplification of the issue that has had serious repercussions in the so-called developed and developing world.

The trade-off discourse that is often employed by the technocracy when facing resistance effectively turns the discussion unfavorably towards any anti-hegemonic individual or institution with the immediate charge of being anti-progressive, regressive, subversive, uninformed or simply, an anti-technology Luddhite. However, further analysis, as we have undertaken in the chapter on Greenpeace, has shown that the Luddhite, if we are to call him or her that, is a stance that was actually against the politics of the machine, not against the machines themselves. All this to say that the trade-off model implies that the technical sphere can only be limited by non-technical values, such as moral or religious beliefs, but it remains untransformed by them. This is to say, the technical code, using Feenberg's words, remains unchanged, and the economic output and efficiency of the system is at best slowed by these traditional and in modernist eyes, superfluous, values.

This position, often co-opted by the technocracy which governs most of our technological infrastructure, goes against what Marcuse's work which showed that the conquest of nature (and here he took on the Frankfurt School's argument that both humanity and nature were intrinsically

connected) is not a metaphysical event but begins with social domination through technology. The difference between those that command and obey in the operation of technical systems can best described as a power differential. And this differentiantial, organized through a variety of institutions, is one of the foundations of the existing civilization in both its capitalist and communist forms.

Technology is a model for dominance as it is a two-sided phenomenon: on the one hand, there is the operator; on the other, the object. Where both operator and object are human beings—as in the case of development—the results of the technical action can be found in an imbalance of power and authority.

The way to fix the problem is not via spiritual renewal, like with Heidegger, rather through democratic advance, as we have seen with the Critical Theorists. This could be accomplished through a radical reconstruction of the base of society, which is, as we have seen by rewriting the technical code to include these "democratic rationalizations," that Feenberg is so fond of. For, by taking technology's ambivalence as a starting point, we have seen that these democratic interventions from below can change the locus of technology to be inherently liberating for the people and could potentially set development onto an original path. For when technology is infused with liberating elements, then we can expect a liberating technology, just as we expect a dominating one to come from a dominant hegemony.

By adopting the Critical Theorist stance in questioning sustainable development, this thesis inevitably broke apart the two parts of the concept of sustainable development and investigated both as non-neutral, and non-necessary socially-constructed technologies. Since this position takes the perspective that all technology embodies the political views of those that make it, we have seen that development embodied the values of a capitalist technocracy and was thus spread on the premise that it would recreate similar authoritarian power structures in developing countries. The results of the development decades showed how this was in fact quite predictable.

In lieu of this background in Critical Theory and modernity studies, we have looked at the Brundtland Report's official founding and coining of the term sustainable development, that term

that has had such a grip on modernity as it seeks to navigate through the differences amongst the seemingly incommensurable variables of the environment, democracy and the field of economics. This work has questioned it to see how it, in turn, understands the question of technology, which in turn examines how it sees the issue of democracy in today's modern, technically mediated universe.

We have seen that no matter the good intentions, the Brundtland Report takes a neutral approach to technology with a technocratic perspective. All of its members were from the world technocracy, all scientists and/or politicians used to representing the people. While attempting to infuse development with democratic ideals, it maintains important elements of control and hierarchy that have been instrumental in leading today's society to its present state of inequality. For example, it accepts on face value such infrastructural projects as nuclear energy as long as a safe way to clear the radiation can be found, yet nothing is spoken about the scientific technocracy that is invariably needed to run it. We have visited Langdon Winner's and Thomas Hughes' examples of the technocracy necessary to running electrical grids and complex technological systems.

Example after example, we see that what the Brundtland Report is proposing is to bound technology, but not to infuse with change. Human leaders were to bound its use with abstract ideas of tradition, ethics and religion, yet the technology would remain the same throughout the document. Never does it seem that the technology is variable. In fact, we see that from the outset, development remains immutable, only bound to its new modifier, sustainable. Development as such does not change.

Forward looking as it claims to be, the WCED's version of sustainable development continues in distinguishing science, treated as a transcultural universal public good, from knowledge, which is seen by contrast as particularistic, indigenous or local. However, this thesis has shown that firstly, there is nothing essential or predetermined about the *global* or the *local*, but that each category is constituted through the beliefs, actions, and practices of relevant actors. They are in fact socially constructed, historically present and non-necessary. And secondly, that effective governance requires dynamic interaction between global and local forms of life.

The thesis has also outlined how the adjective sustainable comes from the noun sustainability, which in turn came from the word environment which was the term originally posted on the WCED's mandate. By investigating its possibilities with the discussion of the Commoner and Ehrlich debate and then later with the Greenpeace founders, we see that its original meaning was much broader than the narrowed down version that the WCED came up with, "the place where we live."

There are many that argue that all co-option is loss. While the thesis questions the particular co-option of the environmental movement by the WCED, it does not take that deterministic route. Rather, it argues that this co-option, now entering its third decade needs to be revised and reworked. As we have seen throughout the thesis, it is unlikely for the hegemonic leaders to come up with a definition that reduces their power.

Yet, paradoxically it is this technocratic and undemocratic power which is at the point of contention in the issue of sustainable development. It is, as Marcuse states:

Peace and power, freedom and power, Eros and power may well be contraries! I shall presently try to show that the reconstruction of the material base of society with a view to pacification may involve a qualitative as well as quantitative reduction of power, in order to create the space and time for the development of productivity under self-determined incentives. (1964, p. 235)

As Feenberg argues, capitalist control is incompatible with a long-term evolution of technology favoring skill and democratic participation in the technically mediated institutions of the society. However, his Critical Theory shows that while the situation is less than optimal, neither is it doomsday. Thus as Feenberg states in *Transforming Technology*, it refutes fatalism. "It does not despair in the face of the triumph of technology, nor does it call for a renewal of the human spirit from a realm beyond society such as religion or nature. Political struggle, as a spur to cultural and technical innovation, continues to play a roll" (2002, p. 14).

In his 1964 work, Marcuse's *One-Dimensional Man* faced a similar query to those questioning sustainable development, his questioning came from Heidegger who was questioning the same issue of agency and democracy. The issue comes down to a question of who rules.

Marcuse, quoting Walter Benjamin, finishes his book with a statement that opens the possibility of change from within the system and out of determinism. It is also an appropriate end to this thesis as it reminds of the crucial first step to a Critical Theory, that change is indeed possible:

> "Nur um der Hoffnungslosen willen ist uns die Hofnung gegeben.
>
> It is only for the sake of those without hope that hope is given to us." (1964, p. 257)

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