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The American University in Cairo

School of Global Affairs and Public Policy

**SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL POLICY IN
EGYPT**

A Thesis Submitted to the

Department of Law

**in partial fulfillment of the requirements for the degree of
Master of Arts in International Human Rights Law**

By

Meaghan Elizabeth McKenna

June 2013

The American University in Cairo
School of Global Affairs and Public Policy

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School of Global Affairs and Public Policy
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Meaghan Elizabeth McKenna

Supervised by Professor Usha Natarajan

ABSTRACT

This thesis discusses the international law concept of sustainable development. It then assesses the effectiveness of Egyptian policies, laws and regulations with regard to sustainable development and culminates with recommendations on how to move towards more sustainable water management, which is one of the most urgent aspects of sustainable development that needs to be improved. Egypt is confronting an increasing problem of water scarcity. It is a developing economy with high population growth. The effects of climate change are predicted to be particularly severe in North African states, with a decrease in rainfall and increasing desertification and drought. Additionally, in Egypt, every year viable agricultural land is lost to urban encroachment. Yet, Egypt's current policies do not adequately address these issues. Environmental laws are outdated and at times remain unenforced and unregulated. Furthermore, laws do not include sustainable development goals that target poverty reduction and other factors which undermine adherence to current policies. In light of the 25 January 2011 Revolution in Egypt, the creation of new environmental policies that incorporate sustainable development goals, as well as their subsequent enforcement, now seems attainable. As Egypt moves towards democratization, enforcement of law is more likely to translate to sustainable development practices.

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Sustainable Development.....	4
	A. Defining Sustainability.....	4
	B. Measuring Sustainability.....	9
	C. Importance of Sustainability.....	9
	D. International Law and Climate Change Frameworks.....	12
	E. Human Rights and Sustainable Development.....	14
	1. The African Union.....	20
	2. The Council of Europe.....	21
	3. The Organization of American States.....	21
	F. Development of Social Infrastructure.....	22
	G. The Coercion of External Support Subsidies.....	24
III.	Egyptian Environmental Policy.....	26
	A. Integrating Sustainable Development and Environmental Policy...	26
	B. Historical Policy and Growth.....	29
	C. The Rate of Population Growth.....	31
	D. Current Efforts and Limits to Success.....	33
	E. Mainstreaming Environmental Policy.....	34
	F. International Sustainability Programs.....	36
	G. Environmental Governance.....	37
	H. Authoritarian Rule.....	43
	I. Post-Revolutionary Egypt.....	45
IV.	Water Resource Management.....	47
	A. Importance of Water Resource Management.....	48
	B. Challenges Confronting Water Management.....	50
	C. Legal Framework.....	51
	D. Governmental Responses.....	54
	E. Potential Solutions.....	56
V.	Conclusion.....	58

I. Introduction

Egypt, as a developing country with serious water resource limitations, is more susceptible to the repercussions of climate change. While climate change has been caused primarily by developed countries, developing countries, including Egypt, are experiencing the worst consequences of the unsustainable development practices of industrialized states, including desertification, and salinization of viable agricultural land as a result of rising sea levels.¹ The impact of this climate in climate can be felt all around the world. The amount of scientific research that has been conducted and continues today on the impacts of climate change illuminates the impact of such development.² This knowledge has led to the establishment of a legal sustainability framework, which first began in 1972 with the Stockholm Conference on the Human Environment, often regarded as the beginning of international environmental law. Although there have been many legal advancements since that time, the effects of climate change still pervade developing countries like Egypt.

The ramifications of harmful development can be experienced on a daily basis by those who reside in Egypt, and one need not be interested in legal frameworks to understand the importance of change on a local level. The air pollution in Cairo is so dense that a hazy cloud lingers over the city, and the amount of solid waste that is disposed of on the streets leads one to question why adequate means of waste disposal have not been created. For example, the Zabbaleen, a community of primarily Coptic Christians, have served as the garbage collectors in Cairo for the past eighty years. The Zabbaleen population is currently between 50,000 and 70,000 people and the work that they do to recycle reusable materials and dispose of organic waste is immense. They are able to reuse around 80 percent of the waste that they collect.³ Unfortunately, the work that they do is greatly overshadowed by the overall population of Cairo, which is around 22 million, and continuing to increase. This is only a fraction of the harmful development that is occurring.

¹ The World Bank, *Climate Change: Economics of Adaptation to Climate Change* (2012), available at <http://climatechange.worldbank.org/content/economics-adaptation-climate-change-study-homepage>.

² *Id.*

³ Western companies typically recycle between 30 and 35 percent. See United States Environmental Protection Agency, *Municipal Solid Waste* (Nov 2012), available at <http://www.epa.gov/epawaste/nonhaz/municipal/index.htm>.

While Egypt cannot possibly mitigate global climate change individually, they can however, do their part to ensure their national practices are sustainable and do not further contribute to climate change. For example, many of Egypt's own development practices are also unsustainable, as can be seen through urban encroachment, which usurps viable agricultural land and threatens food security. This alone, however, has not prevented Egypt from achieving sustainability.

Although Egypt is a sovereign nation, many of its policies and practiced are heavily influenced by international regimes and funding agencies such as the World Bank, USAID, and the IMF. Financial loans often come with substantial conditionalities, which stipulate how the money be used, often shifting the nation's practices toward those that will ensure a higher monetary yield. Egypt does not have control over how the finances are allocated. In this regard, Egypt as a state is continually influenced and molded by its relationships and interactions with other states. Tim Mitchell, in his article titled *America's Egypt: Discourse of the Development Industry*, discusses how a state cannot be seen as a free-standing unit because its economic, social and political processes are all affected by outside influences:

The relations, forces and movements that have shaped people's lives over the last several hundred years have never, in fact, been confined within the limits of nation-states, or respected their borders. The value of what people produce, the cost of what they consume, and the purchasing power of their currency depends on global relationships of exchange. Movements of people and cultural commodities form international flows of tourists, television programs, information, migrant workers, refugees, technologies and fashions. The strictly 'national' identity of a population, an economy, a language or a culture is an entity that has to be continually reinvented against the force of these transnational relations and movements.⁴

Global relationships of exchange impact national economic, political and social processes, which further complicates the challenges that the state faces. With this in mind, there is no simple solution to the developmental needs of Egypt. Egypt faces a range of challenges that will not be alleviated until new sustainable development policies are created and the laws are more adequately enforced. This will help to ensure the longevity of the state's environment. The current state of transition in Egypt can serve as

⁴ Tim Mitchell, *America's Egypt: Discourse of the Development Industry*, 169 MIDDLE EAST REPORT 28, 18-36 (1991).

a catalyst through which improvements to legislation, enforcement and regulation of environmental law can occur. This thesis argues that incorporating sustainable development policy into existing policy, while improving regulatory frameworks and enforcement mechanisms, will lead to more sustainable practices in Egypt. The first chapter provides a background to sustainable development as a concept in international law. The second chapter discusses environmental and sustainability policies in Egypt by examining historical policy and growth, the rate of population growth, current efforts and limits to successful policies, the importance of mainstreaming environmental policy, existing international sustainability programs, environmental governance, the repercussions of authoritarian rule, and the opportunity for legal growth as Egypt transitions to a democratic nation. The third chapter examines the specific issue of water resource management in Egypt by identifying the importance and challenges confronting water resource management, and the current legal framework surrounding water, and governmental mitigation of increased water scarcity.

II. Sustainable Development

As the environment continues to deteriorate as a result of unsustainable human development, international law has recognized that continued development must occur in a sustainable manner. International law, through its conventions, declarations and principles, provides guidelines for achieving sustainable development. International law also affirms the right of developing nations to continue developing, just as others states have in the past. However, it also reaffirms that this development must be achieved sustainably. This chapter provides background on the seminal international law principle of sustainable development. By examining the legal doctrine, the background is set for a discussion in subsequent chapters of sustainable development in Egypt and a case study of Egyptian water policies.

Before exploring Egypt's relationship to sustainable development in chapter two, a discussion of what is meant by “sustainability,” what is meant by “development” and their correlation will be discussed. After discussing the definitions, the conventions of international law can be contextually examined. This section will examine the conventions, declarations and principles that followed the Declaration of the United Nations Conference on the Human Environment, known as the Stockholm Declaration, in 1972,⁵ and will be followed by an analysis of secondary sources of international law.

A. Defining Sustainability

Defining the term sustainability reveals the complexity of the concept and provides a more complete understanding of how states can strive to develop sustainably. A report by the Brundtland Commission, convened by the United Nations as the World Commission on Environment and Development (WCED), known hereafter as the Brundtland Report, discusses sustainable development and the means necessary to achieve it. The definition it provides has been widely accepted and referenced often when the debate of development arises:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given;

⁵ Declaration of the U.N. Conference on the Human Environment (Stockholm Declaration), 1972.

and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.⁶

This definition encapsulates two key aspects of sustainable development: the need of a state to develop and the limitations that are imposed upon this development to ensure the longevity of the environment. The Report goes on to describe sustainable development, or sustainability, as an intricate system⁷ that enhances "the economy, protects natural resources, and ensures social justice."⁸ These goals are intertwined and work together, rather than as existing as three separate ideologies.

A healthy environment, the theory goes, provides the economy with essential natural resources. A thriving economy, in turn, allows society to invest in environmental protection and avoid injustices such as extreme poverty. And maintaining justice, by promoting freedom of opportunity and political participation, for example, ensure that natural resources are well managed and economic gains allocated fairly.⁹

The implications of sustainable development extend far beyond the desire to protect the environment; the theory seeks to unify multiple ideologies to provide a holistic approach to development.

Another important document, known as the Rio Declaration on Environment and Development, as produced by the United Nations Conference on Environment and Development, which commenced in Rio de Janeiro, Brazil in 1992, further iterates the foundation of sustainable development policy. According to this declaration, states have:

the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction [. . .] All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.¹⁰

Both documents highlight the importance of eradicating poverty as an essential component of sustainable development, in addition to the duty of a state to develop

⁶ Report of the World Commission on Environment and Development: Our Common Future art. I, 1987, Annex to document A/42/427.

⁷OUR COMMON FUTURE, *supra* note 6.

⁸David Victor, *Recovering Sustainable Development*, 85 FOREIGN AFFAIRS 91, 91 (2006).

⁹VICTOR, *supra* note 8, at 91.

¹⁰ Rio Declaration on Environment and Development, No. E.73.II.A.14 and corrigendum, chap. I.

sustainably. The Rio Declaration furthers this component by emphasizing that this effort should be a unified cooperation among all states, rather than each state striving to eradicate poverty on a national level. One author furthers the definition of development by incorporating human well-being as an important aspect of development.

Amartya Sen, Nobel Prize winner of 1998, has been highly influential in generating a comprehensive definition of development. His book, *Development as Freedom*, proposes that development needs to be assessed through "the expansion of the capabilities of people to lead the kind of lives they value."¹¹ This definition of development goes beyond the conceptualization of economic growth as a marker of development, to include a more holistic view of development as multidisciplinary and rights-based. Sen employs a broader understanding of development to encompass human capabilities and human freedoms.¹² From this idea, Sen turns and evaluates "poverty as capability deprivation, thus challenging the field to grapple with the implications of political change."¹³ This suggests that the importance of sustainable development extends beyond the state's need to grow economically and politically, by incorporating human well-being and their basic needs as an important pillar of development. Other scholars have expounded upon the theory of sustainable development, as it continues to be an important and accepted component of development discourse.

The concept of sustainable development has proliferated since the Brundtland Report. For example, three leading scientists have conceptualized sustainability as follows. First, "if 'sustainability' is anything more than a slogan or expression of emotion, it [can] amount to an injunction to preserve production capacity for the indefinite future. That is compatible with the use of non-renewable resources only if society as a whole replaces used-up resources with something else."¹⁴ Secondly, that development is a means by which to meet social objectives, and sustainable development ensures the durability of these objectives,

We take development to be a vector of desirable social objectives: that is, it is a list of attributes which society seeks to achieve or maximize. The elements of this

¹¹ AMARTYA SEN, DEVELOPMENT AS FREEDOM 295 (Oxford University Press 1999) (1999).

¹² *Id.*

¹³ SEN, *supra* note 11, at 295.

¹⁴ ROBERT SOLOW, AN ALMOST PRACTICAL STEP TOWARDS SUSTAINABILITY (Resources for the Future 1992) (October 8, 1992).

vector may include: increases in real income per capita; improvements in health and nutritional status; educational achievement; access to resources; a 'fairer' distribution of income; increases in basic freedoms [. . .] Sustainable development is then a situation in which the development vector [. . .] does not decrease over time.¹⁵

And finally, "biophysical sustainability means maintaining or improving the integrity of the life support system of the Earth."¹⁶ All three of these definitions associate sustainability with "the preservation of a system, or of certain characteristics of a system,"¹⁷ through preservation of "productive capacity,"¹⁸ preservation of the social system, and the preservation of the natural environment.¹⁹ All three of these definitions incorporate aspects of the original definition of sustainability as provided by the Brundtland Report, as mentioned above. These definitions have since been used to create sustainable development goals on international and national levels.

Twenty years later, United Nations Conference on Sustainable Development (Rio +20), which is a follow up to the United Nations Conference on Environment and Development of 1992, convened in Rio in June of 2012 to assess the implementation of sustainable development and renew international commitment to achieving sustainability:

The objective of the Conference [was] to secure renewed political commitment for sustainable development, assess the progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development, and address new and emerging challenges. The Conference focus[ed] on two themes: (a) a green economy in the context of sustainable development and poverty eradication; and (b) the institutional framework for sustainable development.²⁰

Virtually every member state had high officials in attendance at the conference, which included 192 heads of state, with the exception of United States President Barak Obama, German Prime Minister Angela Merkel, and United Kingdom Prime Minister David

¹⁵ DAVID PEARCE, EDWARD BARBIER, ANIL MARKANDYA, *SUSTAINABLE DEVELOPMENT: ECONOMICS AND ENVIRONMENT IN THE THIRD WORLD 2* (Earthscan Publications Ltd 1997) (1990).

¹⁶ Keiichiro Fuwa, *Defining and Measurement of Sustainability: The Biophysical Foundations in Defining and Measuring Sustainability: The Biogeophysical Foundation* (Mohan Munasinghe, Walter Shearer, Eds. 1995) at 7.

¹⁷ Bernd Klauer, *Defining and Achieving Sustainable Development*, 6 INT'L J. OF SUSTAINABLE DEV. & WORLD ECOLOGY 114, 115 (1999).

¹⁸ KLAUER, *supra* note 17, at 115.

¹⁹ *Id.*

²⁰ Rio +20: United Nations Conference on Sustainable Development, *Objectives and Themes*, available at <http://www.uncsd2012.org/rio20/objectiveandthemes.html>.

Cameron. The primary outcome of the conference was the document titled *The Future We Want*,²¹ where the member states in attendance renewed their commitment to sustainable development. "The document provides a firm foundation for social, economic and environmental well-being [. . .] by addressing a range of global issues that includes access to clean energy, food security, water and sustainable transportation."²² The document continues by asking governments to establish Sustainable Development Goals through the implementation of a green economy. The United Nations Environment Programme provides the following working definition of a green economy, "a system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks and ecological scarcities."²³ These new Goals are the successor of the Millennium Development Goals and strive to incorporate the role of development, which was the primary criticism of the original Goals. It calls for nations to utilize additional assessment measures to determine the well-being of a country. It asks governments to promote and improve the reporting measures of corporate sustainability and to develop strategies for financing sustainable development.²⁴ It stresses the need to incorporate broad public participation into current and future policy, to provide access to information and judicial and administrative proceedings and to focus on improving equality of gender.²⁵ The main objectives remain clear and persistent: social infrastructural needs of developing countries, such as poverty, sanitation, access to clean water and housing, which can all be addressed and overcome in a sustainable manner. This demonstrates that sustainable development cannot be simplified to the importance of environmental protection.

²¹ UNITED NATIONS CONFERENCE ON SUSTAINABLE DEVELOPMENT, *THE FUTURE WE WANT* (June 2012), <http://ictsd.org/downloads/2012/06/the-future-we-want-19-june.pdf>.

²² RIO +20 UNITED NATIONS CONFERENCE ON SUSTAINABLE DEVELOPMENT, *RIO +20 CONCLUDES WITH BIG PACKAGE OF COMMITMENTS FOR ACTION AND AGREEMENT BY WORLD LEADERS ON PATH FOR A SUSTAINABLE FUTURE* (June 2012), http://www.un.org/en/sustainablefuture/pdf/rio20%20concludes_press%20release.pdf.

²³ See UNITED NATIONS ENVIRONMENT PROGRAMME, *GREEN ECONOMY*, <http://www.unep.org/civil-society/Portals/59/Documents/greenroom2010/Presentation%20Ben%20Simmons%20-%20Green%20Economy.pdf>.

²⁴ *Id.*

²⁵ UNITED NATIONS GENERAL ASSEMBLY, *DRAFT RESOLUTION: THE FUTURE WE WANT* (July 2012), <http://www.un.org/en/ga/president/66/Letters/PDF/Rio+20%20Draft%20Resolution-24%20July.pdf>.

Thus, for the purposes of this paper, the meaning of sustainable development will rely on the original definition as provided by the Brundtland Report, as it details a holistic approach to sustainability that encourages economic growth, protection of natural resources, and ensures social justice.²⁶

B. Measuring Sustainability

Measuring sustainability requires the identification of the platform by which it will be measured. To measure the implementation of sustainability in any given community the concept itself needs to be operationalized. Sustainable development theory tends to be abstract in nature and lacks concrete details for how states can incorporate sustainable development into existing policies.²⁷ One way of measuring sustainability is through law. This thesis will examine sustainable development in Egypt through the lens of sustainable development law. Sustainable development law is defined as "the integration of environmental considerations in the formulation and implementation of economic and sectoral policies, in the decisions of public authorities, in the conduct and development of production processes, and in individual behavior and choice."²⁸ In this thesis, Egypt's sustainability will be measured by focusing on concrete action and an evaluation of how the country enacts and implements the "statutes, regulations, and cases that prevent, mitigate, or remedy unsustainable conduct"²⁹ in relation to both national and international standards.

C. Importance of Sustainability

As the world continues to experience the increasing deterioration of the environment as a result of unsustainable human developmental practices, international law has recognized that continued development needs to occur in a sustainable manner. The emergence of International Environmental Law began with the Stockholm Declaration in 1972,³⁰ but it

²⁶ VICTOR, *Supra* note 8, at 91.

²⁷ J. William Futrell, *Defining Sustainable Development Law*, 19 NAT. RESOURCES & ENVIR. 9, 9 (2004).

²⁸ Regina Axelrod, *Environmental Policy and Management in the European Union*, in ENVIRONMENTAL POLICY IN THE 1990s: REFORM OR REACTION 299, 310-11 (Norman J. Vig & Michael E. Kraft, eds., 3d ed. 1997).

²⁹ FUTRELL, *supra* note 27, at 9.

³⁰ STOCKHOLM DECLARATION, *supra* note 5.

was not until 1992 that the term sustainable development became an accepted concept, as a result of the United Nations Conference on Environment and Development and subsequent declarations and conventions. Before this time, sustainable development did not exist as a concept in international law. Since 1972, many conventions and treaties such as the Declaration on the Right to Development,³¹ the United Nations Millennium Declaration,³² the Kyoto Protocol to the United Nations Framework Convention on Climate Change,³³ have been formulated to provide a framework for states to follow to ensure sustainable developmental practices. As a result, some environmental degradation has been halted, such as the Antarctic hole in the ozone layer.

The Antarctic ozone hole represents an important example of the large-scale harmful effects that human practices have had on the environment.³⁴ During the 1980s, the hole in the ozone layer of the Earth's atmosphere expanded rapidly.³⁵ Since that time, the progression has slowed and now halted as a result of decreased emissions of ozone-depleting substances as regulated under the Vienna Convention for the Protection of the Ozone Layer³⁶ and its Montreal Protocol on Substances that Deplete the Ozone Layer.³⁷ This example demonstrates that international law, when combined with appropriate policy implementation and awareness, has the potential to curb some of the damage that has been created by humans. With this in mind, however, not all consequences of harmful development can be repaired like that of the ozone, which is expected to fully recover by 2050.³⁸ The world is likely to experience the repercussions of industrialized development for years to come, which makes it more imperative to decrease continuing unsustainable development practices.

³¹ Declaration on the Right to Development, G.A. res. 41/128, annex, 41 U.N. GAOR Supp. (No. 53) at 186, U.N. Doc. A/41/53 (1986).

³² United Nations Millennium Declaration, G.A. Res. 55/2, U.N. GAOR, 55th Sess., Supp. No. 49, at 4, U.N. Doc. A/55/49 (2000).

³³ Kyoto Protocol to the United Nations Framework Convention on Climate Change, U.N. Doc. FCCC/CP/1997/7/Add.1, Dec. 10, 1997, 37 I.L.M. 22 (1998), *entered into force* Feb. 16, 2005.

³⁴ Paul Newman, Eric Nash, Randolph Kawa, Stephen Montzka, *When Will the Antarctic Ozone Hole Recover?*, 33 GEOPHYSICAL RESEARCH LETTERS 1, 1-5 (June 2006).

³⁵ *Id.*

³⁶ Convention for the Protection of the Ozone Layer, Mar. 22, 1985, T.I.A.S. No. 11,097; 1513 U.N.T.S. 293, 324; 26 I.L.M. 1529 (1987).

³⁷ Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541 (1987).

³⁸ NEWMAN, ET AL., *supra* note 34, at 1.

Climate change, and the consequences of harmful development, speaks to the importance of states achieving sustainable development. The impacts of climate change are being experienced across the world. As the United States Environmental Protection Agency states, "although the direct greenhouse gases CO₂, CH₄, and N₂O [carbon dioxide, methane and nitrous oxide] occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era, which ended around 1750, to 2010, concentrations of CO₂, CH₄, and N₂O have increased globally by 39, 158, and 19 percent, respectively."³⁹ Climate change as defined by the United Nations Framework Convention on Climate Change (UNFCCC) is "a change of climate that is attributed directly or indirectly to human activity, that alters the composition of the global atmosphere, and that is in addition to natural climate variability over comparable time periods."⁴⁰ By contrast, the Intergovernmental Panel on Climate Change (IPCC), which focuses on scientific assessment in support of the FCCC, defines climate change more broadly as "any change in climate over time whether due to natural variability or as a result of human activity."⁴¹ Historically, climate has varied naturally, but today's conditions are distinctive as a result of human influences. Human practices around the world, which result in atmospheric composition changes, are now "large enough to exceed the bounds of natural variability [. . .] which has been the case since about 1980."⁴² These changes occur as a response to energy use emissions, urbanization and land use changes, and are likely to continue for many centuries to come.⁴³ If countries around the world develop sustainably, in a manner that does not further damage the natural environment, it will promote the longevity of human life on the planet. "Because these gases have long (decades to centuries) atmospheric lifetimes [. . .] the magnitude of the present anthropogenic change will become overwhelmingly large compared to that of

³⁹ UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, UNITED STATES GREENHOUSE GAS INVENTORY EXECUTIVE SUMMARY 2(2012), <http://www.epa.gov/climatechange/emissions/downloads12/US-GHG-Inventory-2012-ES.pdf>.

⁴⁰ United Nations Framework Convention on Climate Change, *United Nations Framework Convention on Climate Change, Article 1: Definitions* (2012), available at http://unfccc.int/essential_background/convention/background/items/2536.php.

⁴¹ Intergovernmental Panel on Climate Change, *IPCC Fourth Assessment Report: Climate Change* (2007), available at http://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html.

⁴² Thomas Karl, Kevin Trenberth, *Modern Global Climate Change*, 302 SCIENCE 1719, 1719-1723 (5 December 2003).

⁴³ *Id.*

natural changes."⁴⁴ Furthermore, it is difficult to predict the extent of changes, so the outcomes vary significantly. "Even with these uncertainties, the likely outcome is more frequent heat waves, droughts, extreme precipitation, and related impacts (such as wild fires, heat stress, vegetation changes, and sea level rise) that will be regionally dependent."⁴⁵ This further articulates the need for sustainable development, so as to minimize the countries that are suffering the consequences of harmful development.

D. International Law and Climate Change Frameworks

The current international laws that exist to address climate change are comprised of various mechanisms and agreements. The first agreement that was enacted was The United Nations Framework Convention on Climate Change.⁴⁶ This treaty, with almost global participation, was signed in 1992 at the United Nations Conference on Environment and Development and entered into force in 1994. A direct outgrowth of the UNFCCC is known as the Kyoto Protocol, which entered into force in February 2005, and was to expire in 2012.⁴⁷ The Kyoto Protocol set limits on developed states' greenhouse gas emissions. There have been seventeen subsequent Conferences of the Parties (COP) to the UNFCCC. The most recent COP took place in Doha, Qatar in November 2012, where it was decided that the Kyoto Protocol would be extended until 2020. Additionally, the conference decided to establish an international mechanism to "address loss and damage associated with the impacts of climate change in developing countries that are particularly vulnerable to the adverse effects of climate change"⁴⁸ at the conference's nineteenth session, to be financed under the existing promise of developed countries to mobilize increased climate finances of \$100 billion USD per year by 2020.⁴⁹ The system of compliance with the Kyoto Protocol provided a more vigorous system than

⁴⁴ KARL, TRENBERTH, *supra* note 42, at 1719.

⁴⁵ KARL, TRENBERTH, *supra* note 42, at 1719.

⁴⁶ UNITED NATIONS, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (1992),

http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

⁴⁷ Kyle Danish, *An Overview of the International Regime Addressing Climate Change*, 7 SUSTAINABLE DEV. LAW & POLICY 10, 10-15 (2007).

⁴⁸ UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, REPORT OF THE CONFERENCE OF THE PARTIES ON ITS EIGHTEENTH SESSION, HELD IN DOHA FROM 26 NOVEMBER TO 8 DECEMBER 2012 23 (February 2013),

<http://unfccc.int/resource/docs/2012/cop18/eng/08a01.pdf>.

⁴⁹ *Id.* at 13.

other international environmental agreements, and has subsequently introduced a number of innovations to international law. Compliance with the Kyoto Protocol is ensured by a Compliance Committee, which monitors the commitments of each country and whether they are being fulfilled. Furthermore, if a country fails to comply with its obligations, there are three types of penalties. First, the country must formulate a plan to ensure future compliance. Second, the country loses the right to partake in the quota trading system, and third this country is required to compensate for the deficiency in the next commitment period, which is after 2012, while incurring a 30% penalty.⁵⁰ The Kyoto Protocol was successful in that it brought together a multitude of states to discuss climate change and pledge to cut emissions. The results, however, have been far from satisfactory, and today emissions continue to climb. In this way, there is still much progress to be made and legislation created that addresses the accountability of major emitters around the world.

When examining the international framework and the value of sustainability, it is interesting that Egypt, as a nation state, only represents about 0.65% of global carbon dioxide emissions, as compared to the primary emitters such as the United States and China who represent 17% and 21.9% respectively.⁵¹ The Chinese population is 1.34 billion people⁵², as compared to the United States which has 311 million people⁵³, so an examination of carbon dioxide emissions per capita is more representative. China emits 5.3 metric tons of carbon dioxide per capita, the United States emits 18 metric tons, and Egypt emits 2.7 metric tons.⁵⁴ Egypt is a minor contributor of carbon emissions, and thus can only mitigate against climate change in a limited way in terms of global carbon

⁵⁰ While some Kyoto Protocol signatories are achieving their emissions targets, many have not, and CO₂ levels in the atmosphere have continued to increase. This primarily stems from the fact that the United States, the largest historical emitter did not ratify the Kyoto Protocol. Additionally, the emissions of large emerging economies such as China and India have been growing. China is now the world's largest greenhouse gas emitter, followed by the United States and India. See Danish Ministry of Climate, Energy and Building, *Compliance with the Kyoto Protocol*, available at http://www.kemin.dk/compliance_with_the_kyoto_protocol_country_emissions_first.htm.

⁵¹ The World Bank, *CO₂ Emissions (kt)* (2008), available at http://search.worldbank.org/quickview?name=%3Cem%3ECO2%3C%2Fem%3E+%3Cem%3Eemissions%3C%2Fem%3E+%3Cem%3E%28kt%29%3C%2Fem%3E&id=EN.ATM.CO2E.KT&type=Indicators&cube_no=2&qterm=CO2+Emissions+%28kt%29.

⁵² The World Bank, *Population Data* (2010), available at <http://www.worldbank.org/>.

⁵³ US Census Bureau, *The 2012 Statistical Abstract: The National Data Book* (2012), available at <http://www.census.gov/compendia/statab/cats/population.html>.

⁵⁴ WORLD BANK, *supra* note 51.

emissions. It can however, take certain steps to regulate and enforce sustainable development policy in an effort to minimize the harm unsustainable development practices have on Egyptians. The central goal of sustainable development is to improve the living and working conditions of a population in a stable manner that ensures the longevity of the society. By striving for sustainable development, nations are guaranteeing that generations to come are able to enjoy the same benefits that are experienced today. Thus it is imperative that future social and economic developments are established in an environmentally and ecologically sound manner.⁵⁵

E. Human Rights and Sustainable Development

The connection between human rights and sustainable development is not one that is inherently obvious. The right to ecologically sound development is, however, a universal human rights standard. Severe ecological damage will inevitably result if sustainable development is not followed, and it is vital that all future development be achieved sustainably. With regard to developing nations, it is their right, as given by the Declaration on the Right to Development, to continue developing their own country, just as the industrialized nations have in the past., "The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized."⁵⁶ While states do possess the right to develop, they also have the responsibility to ensure that their development practices, and the practices of others, do not cause harm to the environment. According to the Rio Declaration and the principles of International Law, states have the right of resource exploitation in accordance with environmental and developmental policies, while ensuring that this exploitation does not cause damage to the environment.⁵⁷ Human rights standards protect the right to sustainable development:

Furthermore, the right to sustainable development is protected by human rights law.⁵⁸

⁵⁵ The People's Movement for Human Rights Education, *The Human Right to Sustainable Development*, available at <http://www.pdhre.org/rights/sustainable-development.html>.

⁵⁶ DECLARATION ON THE RIGHT TO DEVELOPMENT, *supra* note 31.

⁵⁷ RIO DECLARATION, *supra* note 10 at Principle 2.

⁵⁸ THE PEOPLE'S MOVEMENT, *supra* note 55.

Concerns surrounding development policies and their economic and ecological impact are human rights issues. Reinforcing the right of every woman, man, youth and child to ecologically sound development are universal human rights standards.⁵⁹

As this quote asserts, sustainable development needs to be understood and ascertained through the scope of human rights, thus amplifying its imperative and substantive nature. According to Article 8(1) of the Declaration on the Right to Development, every individual has the right to basic resources,⁶⁰ including clean water and a healthy environment, as clarified by the General Assembly in Resolution 54/175.⁶¹ There are three primary correlations between human rights and environmental protection⁶²:

1. The environment as a pre-requisite for the enjoyment of human rights (implying that human rights obligations of States should include the duty to ensure the level of environmental protection necessary to allow the full exercise of protected rights);
2. Certain human rights, especially access to information, participation in decision-making, and access to justice in environmental matters, as essential to good environmental decision-making (implying that human rights must be implemented in order to ensure environmental protection); and
3. The right to a safe, healthy and ecologically-balanced environment as a human right in itself.⁶³

The right to clean water and a healthy environment can be enjoyed through development that occurs in a sustainable way. Sustainable development allows for continued development without harming the environment, and thus ensures the right to a healthy environment by guaranteeing the longevity of the natural world. Without sustainable development, the health of the environment is compromised, and thus the human rights of individuals are equally compromised. When examining sustainable development, the well-being of humanity is intricately connected to the well-being of the Earth, as it strives to equally align the protection of humanity with the protection of the environment and its

⁵⁹ *Id.*

⁶⁰ DECLARATION ON THE RIGHT TO DEVELOPMENT, *supra* note 31 at Article 8.

⁶¹ General Assembly Resolution 54/175, A/RES/54/1-A/RES/54/283.

⁶² United Nations Environment Programme: Division of Environmental Law and Conventions, *Human Rights and the Environment*, available at

<http://www.unep.org/delc/HumanRightsandTheEnvironment/tabid/54409/Default.aspx>.

⁶³ *Id.*

resources.⁶⁴ The UN Working Group on the Right to Development solidified the point that human rights and sustainable development are inextricably linked, by stating that:

[The right to development is] multidimensional, integrated, dynamic and progressive. Its realization involves the full observance of economic, social, cultural, civil and political rights. It further embraces the different concepts of development of all development sectors, namely sustainable development, human development and the concept of indivisibility, interdependence and universality of all human rights.⁶⁵

Under the umbrella of the United Nations, many of the documents that have been produced address important rights which, through the realization of such rights, promote sustainable development. The right to development is a fundamental freedom that can be realized by every individual as long as such development does not compromise the security of the environment. The Declaration on the Right to Development of 1986 defines the right to development as an environment in which all human rights and fundamental freedoms can be fully realized, including the right to self-determination. The primary responsibility of the state is to create national and international conditions that promote development. States have a duty to cooperate with each other to ensure development and diminish the obstacles hindering development while formulating development policies, by seeking to "promote, encourage, and strengthen a universal respect for and observance of all human rights and freedoms without discrimination."⁶⁶ States should promote international peace and security. States should ensure equal "access to basic resources, education, health services, food, housing, employment, and the fair distribution of income."⁶⁷ By granting equal opportunities and equal access to basic resources, states are acknowledging the importance of sustainable development for without it, access to such resources would not be possible.

Similarly, the utilization of environmental resources is a fundamental right, as long the usage ensures the longevity of these resources. The Rio Declaration on Environment and Development of 1992, which reaffirms and builds upon the Declaration

⁶⁴ Human Rights Education Associates, *Sustainable Development*, available at http://www.hrea.org/index.php?base_id=166.

⁶⁵ United Nations Development Programme, *Human Rights and Sustainable Human Development* (Nov. 1997), available at <http://mirror.undp.org/magnet/e-list/hr.htm>.

⁶⁶ DECLARATION ON THE RIGHT TO DEVELOPMENT, *supra* note 31.

⁶⁷ *Id.*

of the United Nations Conference on the Human Environment of 1972,⁶⁸ introduces environmental conservation as a key element of sustainable development. It states that development projects have a duty to meet the needs of not only this generation but the needs of generations to come. Human beings are entitled to live a "healthy and productive life in harmony with nature."⁶⁹ Another key element of the declaration is the emphasis on eradicating poverty as a means of achieving development. States have:

the sovereign right to exploit their own resources but simultaneously have the responsibility to ensure that such activities do not cause damage to the environment. Environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it. States shall cooperate in global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. Women have a vital role in environmental management and development, and their full participation is essential in order to achieve sustainable development. Indigenous people and their communities also play a vital role because of their knowledge and traditional practices. Peace, development and environmental protection are interdependent and indivisible.⁷⁰

The realization of human rights includes the right to exercise fundamental freedoms such as varying forms of development. Since the creation of the Universal Declaration of Human Rights of 1948, which was the first international document to provide rights relating to development in articles 21, 23, 25, 26, 27, 28, many documents have followed to ensure the protection of human rights. Under the Universal Declaration, these rights include the right to take part in the government, the right to employment, the right to a basic standard of living, the right to security, the right to shelter, the right to nourishment, the right to education, the right to scientific advancement, and the right to a social and international order where such rights can be fully realized.⁷¹

Obtaining equality before the law allows individuals to develop without being undermined as a result of discrimination. The International Convention on the Elimination of All Forms of Racial Discrimination of 1965 states in article 5 that there should be no disparity in the level of enjoyment of rights based on race, color or ethnicity. Pertaining to development it provides equality before the law in the

⁶⁸ STOCKHOLM DECLARATION, *supra* note 5.

⁶⁹ RIO DECLARATION, *supra* note 10.

⁷⁰ RIO DECLARATION, *supra* note 10.

⁷¹ Universal Declaration of Human Rights, General Assembly res. 217A (III), 10 December 1948.

participation of elections, equal employment opportunities, fair wages, adequate housing, health services and education.⁷²

Self determination is an important part of sustainable development as each individual is granted the potential to pursue economic stability as long as such self determination does not undermine the health of the environment. The International Covenant on Economic, Social and Cultural Rights of 1966 provides in articles 1, 6, 7, 11, 12, and 13 every individual the right to self-determination to develop economically, socially and culturally. It states the right to achieve economic stability through employment, the right to proper working conditions, the right to fair wages to maintain a reasonable standard of living, access to proper housing, clothing and food, and the continuous improvement of living conditions. In order to meet food needs states can, "improve methods of production, conservation, and distribution by making full use of technical and scientific"⁷³ knowledge. States should use available knowledge to use natural resources more efficiently.⁷⁴ Furthermore, individuals have the right to certain freedoms, such as "the right to attain the highest level of physical and mental health, have access to education, and be able to enjoy the benefits of scientific progress."⁷⁵

Women, as equal members of society have the right to develop and enjoy the same benefits as men. The Convention on the Elimination of All Forms of Discrimination Against Women of 1979 advocates in articles 3, 7, 10, 11, 13, and 14 that states have a duty to enact legislation that ensures that women are able to develop and advance as equals to men. They should have equal opportunity to participate in public office, equal access to education that will equip them with the skills necessary to chose careers, where they are equally employed and enjoy equal benefits. They should have equal access to credit and loans, participate in and benefit from rural development, have "access to health care, be included in agricultural credit, reform and land resettlement schemes,"⁷⁶ and be afforded adequate living conditions.⁷⁷ Unfortunately, the issue of gender inequality has

⁷² International Convention on the Elimination of All Forms of Racial Discrimination, General Assembly res. 2106 (XX), 21 December 1965.

⁷³ International Covenant on Economic, Social and Cultural Rights, General Assembly res. 2200A (XXI), 16 December 1966.

⁷⁴ INTERNATIONAL COVENANT, *supra* note 73.

⁷⁵ *Id.*

⁷⁶ CEDAW, *supra* note 72.

⁷⁷ *Id.*

yet to be eliminated, and the most recent United Nations Conference of Sustainable Development in 2012 identified gender equality as an important aspect of *The Future We Want* document that was produced at the Conference.

Additionally, children as equal members of a nation state, have the right to individual, physical, emotional, social, cultural and spiritual forms of development. The Convention on the Rights of the Child of 1989 seeks to provide children with the means necessary to achieve the highest level of health possible in articles 24, 27, 28, 29, and 32. It asks states to commit to fighting disease and malnutrition by providing nutritious food and clean water. Every child has the right to a standard of living that favors individual, physical, social, cultural and spiritual development. General and vocational education should be provided for all children to help them realize their own potential⁷⁸ and “equip them to successfully participate in society. They should be protected from unjust labor conditions that limit their formal education and are harmful to their development.”⁷⁹ Children should not only be considered equal members of a nation state, but recognized for the integral role that they will play in the future of sustainable development as the leaders of society. From this perspective, educating children on sustainable development will provide the foundational knowledge that will hopefully lead to continued sustainable development practices in the future.

People of tribal or indigenous backgrounds are afforded the same rights before the law, especially in regard to the individual expression of their culture and traditions. The ILO Convention No 169 Concerning Indigenous and Tribal Peoples in Independent Countries of 1989, in articles 6 and 7, asserts that "indigenous people have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions, spiritual well-being and the lands they occupy. Their governments shall establish means for the full development of these peoples' own institutions and initiatives,"⁸⁰ and provide the resources necessary to do so. This can be achieved by improving the living and working conditions, the standards of health and education of indigenous populations and their participation in the "formulation, implementation, and

⁷⁸ Convention on the Rights of the Child, General Assembly res. 44/25, 20 November 1989.

⁷⁹ *Id.*

⁸⁰ Convention Concerning Indigenous and Tribal Peoples in Independent Countries, General Conference of the International Labour Organization, 76 Session, 27 June 1989.

evaluation of plans and programs for both national and regional development which may directly affect them."⁸¹

While the declarations and conventions listed above highlight those developed by the United Nations, many regional bodies and local agencies also recognize and support the concept that social infrastructure development is a vital step in sustainable development. The African Union,⁸² the Council of Europe,⁸³ and the Organization of American States,⁸⁴ all outline the importance of developing such needs in a sustainable manner.

1. The African Union

The African Union states that children, as equal members of society, and future advocates for sustainable development. The rights of children are exceedingly important, as children can be future advocates for the enforcement of sustainable development. The African Union, formerly known as the Organization of African Unity, has produced the African Charter on the Rights and Welfare of the Child, which goes beyond the Convention on the Rights of the Child in 1990 in articles 13, 15, 16, 17, 22, and 24 by stipulating special protections under the law for refugee children that do not have parents or guardians. Additionally, following the formation of the African Union the New Africa Initiative was created in 2001. It serves as a commitment to the development of Africa as conceptualized by African leaders. Under the New Africa Initiative, a document containing these commitments was produced, and is known as the New Partnership for Africa's Development. This document not only provides a framework for African countries, but serves as a reference for other countries to understand the needs of Africa from the perspective of its own leaders, in the hopes of providing the continent with developmental support.⁸⁵

⁸¹ *Id.*

⁸² See <http://www.au.int/en/>.

⁸³ See <http://www.coe.int/web/coe-portal>.

⁸⁴ See <http://www.oas.org/en/default.asp>.

⁸⁵ African Charter on the Rights and Welfare of the Child, Adopted in July 1990 by the Assembly of Heads of State and Government in Addis Ababa, Ethiopia, Organisation of African Unity. CAB/LEG/153/Rev 2.

2. The Council of Europe

Just as the African Charter offers special protection to children, the Council of Europe, which produced the European Social Charter in 1961, strives to create a social environment in which all people can thrive by providing the right to employment and security, the right to economic advancement and vocational training, and supplemental support to children and pregnant women within the workplace. It also provides protection for disabled persons and migrant workers within the work environment.⁸⁶

3. The Organization of American States

In addition to the African Union and the Council of Europe, the Organization of American States also supports the ideology that social infrastructure development is a vital step in sustainable development. The Organization produced the Charter of the Organization of American States in 1948 and article 34 of this Charter guarantees access to proper nutrition by encouraging states to expand and vary production and availability.⁸⁷ Similarly, the Additional Protocol to the American Convention on Human Rights in the area of Economic, Social and Cultural Rights, known as the Protocol of San Salvador in 1988, states in article 12 that adequate nutrition is a human right and that states must implement plans to increase the production and availability of food supply.⁸⁸ Such examination of the various declarations, documents, and treaties sets the background for the discussion surrounding social infrastructure development, which is a key element of sustainable development.

⁸⁶ The Council of Europe, European Social Charter, Turin, 18.X.1961.

⁸⁷ Charter of the Organization of American States, 119 U.N.T.S. 3, *entered into force* December 13, 1951; amended by Protocol of Buenos Aires, 721 U.N.T.S. 324, O.A.S. Treaty Series, No. 1-A, *entered into force* Feb. 27, 1970; amended by Protocol of Cartagena, O.A.S. Treaty Series, No. 66, 25 I.L.M. 527, *entered into force* Nov. 16, 1988; amended by Protocol of Washington, 1-E Rev. OEA Documentos Oficiales OEA/Ser.A/2 Add. 3 (SEPF), 33 I.L.M. 1005, *entered into force* September 25, 1997; amended by Protocol of Managua, 1-F Rev. OEA Documentos Oficiales OEA/Ser.A/2 Add.4 (SEPF), 33 I.L.M. 1009, *entered into force* January 29, 1996.

⁸⁸ Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, "Protocol of San Salvador," O.A.S. Treaty Series No. 69 (1988), *entered into force* November 16, 1999, *reprinted in* Basic Documents Pertaining to Human Rights in the Inter-American System, OEA/Ser.L.V/II.82 doc.6 rev.1 at 67 (1992).

F. Development of Social Infrastructure

Sustainable development incorporates social, cultural, political, economic, and environmental needs, of which social infrastructure development plays an important role. The gross exploitation and environmental harm that has been caused by industrialized nations has served as the catalyst for the unnecessary suffering of those in developing nations such as Egypt. It is in these industrialized nations that the problem lies, and it is in the development practices of those countries that require the most urgent change. One of the drawbacks of the principle of sustainable development is associated with the unequal distribution of costs, resources, and responsibilities that coincide with international environmental policies and standards.⁸⁹ The international law principle of common but differentiated responsibilities (CBDR) acknowledges the historical responsibility that industrialized nations bear for the accumulation of greenhouse gas emissions (GHG) and their greater capacity to take action. Thus, the UNFCCC divides the parties into two main groups: Annex I countries, which is primarily comprised of developed countries, and the non-Annex I countries, which is primarily developing countries. The treaty indicates some general commitments for all parties, but assigns certain additional obligations to the Annex I parties. For example, article 4.2 dictates that Annex I parties must incorporate national mitigation policies that target returning emissions to their 1990 levels.⁹⁰ Since then, Annex I parties have been assigned further obligations. In *The Future We Want*, produced by the United Nations Conference of Sustainable Development states that developed states have the obligation to improve international cooperation by strengthening the allocation of financial resources and avoiding unwarranted conditions to such resources. They should assist in capacity-building and in increasing the flow of technology to developing countries in the hopes of decreasing the technological dependency of developing countries:⁹¹

The concept of sustainable development, for instance, speaks to the demands of the South by providing that environmental protection cannot be considered without due regard to economic and social development. Likewise, CBDRs acknowledge the historical responsibility that the North bears in many of today's environmental problems and provide that the special needs, interests, and

⁸⁹ Mario Prost and Alejandro Torres Camprubi, *Against Fairness? International Environmental Law, Disciplinary Bias, and Pareto Justice*, 25 LEIDEN J. OF INT'L LAW 380, 379-396 (2012).

⁹⁰ DANISH, *supra* note 47, at 10.

⁹¹ UNITED NATIONS, *supra* note 21.

capabilities of developing countries must be taken into account in the design and implementation of environmental regimes.⁹²

Acknowledgement of the responsibility of the industrialized nations and the consideration of the needs of developing countries to continue economic and social development is a critical aspect of sustainable development. Each and every country can play a role in ensuring their individual responsibility toward sustainable development.

Social infrastructure development cannot follow the achievement of development, but rather can be incorporated into successful implementation of sustainable development. While it is exceedingly more difficult to oppose sustainable development as widespread advocacy increases, arguments have been made by socio-cultural critics such as Arturo Escobar,⁹³ Wolfgang Sachs,⁹⁴ and Jude Fernando⁹⁵ that mainstreaming sustainable development is another example of how the needs of the marginalized are discounted in the name of green development.⁹⁶ Before a nation can further its development, the basic needs of its people need to be fulfilled. If social infrastructure, such as proper education, sanitary living and working conditions, and appropriate nutrition, are not established first then the ability of the individual to thrive economically is diminished. Sustainable development itself seeks to improve such conditions, but by doing so in a sustainable way. The theory of sustainable development recognizes that basic needs of developing countries can be initially met by offering governments the tools necessary to ascertain local needs sustainably. These arguments, which suggest that social infrastructure needs are to be met before sustainable development can occur, rationalize the continuity of harmful forms of development. Through an analysis of international treaties, declarations and commitments it becomes clear that sustainable development incorporates social, cultural, political, economic, and environmental needs. But what can be done if developing countries, which rely on foreign aid, are pressured to

⁹² PROST, *supra* note 89, at 387.

⁹³ See ARTURO ESCOBAR, *ENCOUNTERING DEVELOPMENT: THE MAKING AND UNMAKING OF THE THIRD WORLD* (Princeton University Press, Princeton, NJ) (1995).

⁹⁴ See Wolfgang Sachs, *Sustainable Development and the Crisis of Nature: On the Political Anatomy of an Oxymoron in Living with Nature: Environmental Politics as Cultural Discourse* (Frank Fischer and Maarten Hajer, Eds. 1999).

⁹⁵ See Jude Fernando, *The Power of Unsustainable Development: What is to be done?* 590 ANNALS OF THE AM. ASSOC. OF POL. & SOC. SCIENCES 6, 6-34 (2003).

⁹⁶ Chris Sneddon, Richard Howarth, Richard Norgaard, *Sustainable Development in a post-Brundtland World*, 57 ECOLOGICAL ECO. 259, 253-268 (2006).

accept conditional support from external supporters and thus are dissuaded away from sustainable development goals? This is a difficult question, and one that will be subsequently addressed.

G. Coercion of External Support Subsidies

In order for developing states to develop in a sustainable manner, they typically rely on the support of international loans to finance new undertakings. For the governments of developing countries such as Egypt, that are so indebted they can barely afford to pay the interest on their loans, it comes as no surprise that they will eagerly accept subsidies from external supporters. In Egypt, the poor have paid a heavy price as a result of such subsidies. International loans often come with conditionalities on how the finances are to be allocated. World prices for various commodities are no longer established by the "free interplay of private market forces, but by the monopolies or oligopolies organized by states and multinational corporations."⁹⁷ The United States Agency for International Development (USAID) has provided Egypt with \$15 billion dollars for economic assistance since 1974. Almost this entire budget has been reallocated back to US corporations. Around half of this budget, or \$7.7 billion dollars, was spent to purchase American goods such as grain and agricultural equipment. Another billion dollars is paid directly to the US by the US itself in the form of cash transfers that accounts for payments on Egypt's military debt. According to United States law, all aid apart from food must be stopped if a country fails to pay military debt repayments by even one year.⁹⁸ Egypt failed to pay these repayments at the end of 1983, and subsequently the US government converted all military loans to grants:

The US government responded to this threatened collapse of the entire system of subsidies to its own private sector by converting all subsequent military loans to grants, allocating the bulk of those grants for progress payments to itself on earlier Egyptian arms purchases, and instructing USAID in the meantime to circumvent the law by setting aside about \$100 million a year from economic development funds as cash transfers, to be deposited in the Federal Reserve Bank of New York and then returned to Washington as Egypt's monthly interest payments on its military debts.⁹⁹

⁹⁷ MITCHELL, *supra* note 4, at 31.

⁹⁸ MITCHELL, *supra* note 4, at 32.

⁹⁹ *Id.*

Essentially, although illegal and untraceable, a total of \$8.7 billion dollars, or 58% of US economic assistance to Egypt has been directly returned to the United States, and thus is not available to be used for Egypt's development projects. Even the remaining \$6.3 billion dollars “has been spent in the US or on American contractors in Egypt such as General Electric, Westinghouse, Bechtel, Ferguson International, Caterpillar, John Deere and International Harvester.”¹⁰⁰ What this means is that effectively all economic aid assistance from the US is not being used toward development projects, as it was initially earmarked to do.¹⁰¹ This has positively impacted, in the short term, the lives of Egyptians, as “the supply of power stations, sewage networks, telephone exchanges, drinking-water plants, irrigation systems and numerous other basic infrastructure projects and services has improved the deteriorated physical fabric of the Egyptian economy.”¹⁰² Despite the benefits, it makes Egypt almost entirely dependent on the US for food, agricultural machinery, and technology, which is a high price to pay, and unfortunately this is but one example.

In terms of sustainable development and other local efforts, this means that a significant portion of foreign developmental aid is no longer available for developmental projects. Without this money, they tend to channel remaining aid into more immediate, short term development goals instead of investing in the future. Thus, sustainable development and the ensuing policies, remain under enforced and under regulated.

¹⁰⁰ MITCHELL, *supra* note 4, at 32.

¹⁰¹ *Id.*

¹⁰² MITCHELL, *supra* note 4, at 32.

III. Egyptian Environmental Policy

The examination of the seminal international law principle of sustainable development in chapter one allows for the subsequent discussion of how Egypt, as a developing country, has interpreted this concept and included it in its national policies. This chapter discusses the importance of integrating sustainable development and environmental policy by briefly examining Egypt's political and economic history, and its population growth, to better understand the current legal system. Examining the overarching historical growth of Egypt will help to understand why current legal policy often remains unenforced and unregulated. By incorporating sustainable development into existing policy, and addressing the deficiencies of current regulatory mechanisms, Egypt will be able to adequately address current and future environmental concerns.

A. Integrating Sustainable Development and Environmental Policy

Environmental policy cannot be successful without incorporating a country's need to continue developing. Egypt serves as an example of a developing country that would benefit from incorporating sustainable development in their national policy. Egypt's existing environmental policy has proven to be ineffective primarily because it has failed to identify what is preventing its successful implementation. Existing environmental policy does not recognize the factors that prevent its subsequent enforcement, such as poverty and the need to further develop. Incorporating sustainable development policy into existing environmental policy provides a multifaceted structure that allows for continued social, economic, and developmental growth while ensuring the protection of the environment. Current enforcement and regulatory measurements of Egyptian law can be improved to allow new policies to be fully implemented.

The environment, and its subsequent protection, is an issue that permeates multiple sectors of Egypt. Environmental policy cannot be successful without incorporating human dimensions of development:

In view of the close relationship that exists between environmental problems and those of economic and social origin, it is impossible to separate the human and environmental dimensions of development, which are linked both by the

aggregate effect of social relations and actions as they influence the natural ecology and by the impact of environmental changes on society.¹⁰³

In this regard, environmental impact is a question to be assessed in the development of all public policy. The goal of integrating sustainable development and environmental policy is to identify which aspects of current policies have the potential to promote sustainable environmental development and policy. These links can serve as the foundation for "promoting a more sustainable development agenda."¹⁰⁴

Integrating sustainable development goals, as established and encouraged by many countries around the world including Egypt, can be incorporated into existing environmental policy. Current Egyptian environmental policy does not include sustainable development, nor has it successfully enforced action plans targeting the protection of natural resources or addressed local behaviors that contribute to environmental degradation. Many of these local behaviors that are harmful to the environment ultimately stem from poverty and the inability to obtain basic necessities. Sources as early as the Brundtland Report have recognized that "poverty reduces people's capacity to use resources in a sustainable manner; it intensifies pressure on the environment"¹⁰⁵ and that "the poor are forced to forgo the needs of the future to meet the needs of today."¹⁰⁶ A 2005 estimate stated that 20% of Egypt's population was under the poverty line.¹⁰⁷ While this statistic may vary based on which poverty threshold it is measured by, what can be understood from this statistic is that Egypt, as a developing country, is struggling with poverty, a struggle which is unfortunately not unique to Egypt. As mentioned, poverty reduces a nation's capacity to protect the needs of the future as it struggles with meeting the needs of today. In this regard, current environmental policy does not improve the well-being of Egyptians, in terms of creating food security and reducing poverty, but rather focuses solely on protecting the environment and its natural

¹⁰³ ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN: WOMEN AND DEVELOPMENT UNIT, GENDER, THE ENVIRONMENT AND THE SUSTAINABILITY OF DEVELOPMENT 5 (October 1998), <http://www.cepal.org/publicaciones/xml/6/4706/lcl1144i.pdf>.

¹⁰⁴ UNITED NATION ENVIRONMENT PROGRAMME, ENVIRONMENT AND SUSTAINABLE DEVELOPMENT 113, http://www.unep.org/civil_society/GCSF8/pdfs/gender_susdev.pdf.

¹⁰⁵ OUR COMMON FUTURE, *supra* note 6.

¹⁰⁶ *Id.*

¹⁰⁷ CIA World Factbook, *Populations below the Poverty Line* (2005), available at <https://www.cia.gov/library/publications/the-world-factbook/fields/2046.html>.

resources. Incorporating sustainable development policy into existing environmental policy ensures that the needs of the local population are being met in addition to environmental protection efforts, not at the cost of local populations arguably as current policies allow.

There exist several Egyptian policies that individually target the alleviation of poverty such as food subsidies, income transfers, employment creation schemes, the Social Fund for Development, and educational training. However, these policies are not integrated:

Despite the absence of a coordinated national policy on poverty reduction, the Egyptian government has designed and implemented ad hoc interventions aimed at poverty reduction through, for example, transfer of assets to the poor. Two of these interventions—food subsidies and income transfers—provide social protection, whereas the other three—employment creation schemes, the Social Fund for Development, and training—are designed to reduce poverty through transfer of productive assets, employment creation, and investments in human capital.¹⁰⁸

Such policies can actually undermine independent environmental policies by failing to assess their potentially harmful impact. These disconnected policies ultimately perpetuate existing hardships rather than alleviate them. Sustainable development policy, however, strives to provide nations with a comprehensive policy that encourages economic growth and poverty reduction while promoting environmental protection. Sustainable development policy identifies the multifaceted nature of development and seeks to target each facet individually under the overarching goals of sustainable development. In this regard, states are encouraged to develop as long as such development does not compromise the health of the environment. This can be accomplished by mainstreaming environmental needs into policies:

The key to ensure sustainable development and economic viability of environmental resources is to integrate environmental values and costs into economic decisions and policies. In other words, in order to sustain long-term socio-economic activities and to ensure an optimum balance, it is necessary to consider the relationship between the relevant industries and natural resources and to measure the maximum capacity. In fact, integration of the environmental

¹⁰⁸ SAMIRA SALEM AND JANE GLEASON, USAID: AN EXAMINATION OF POVERTY REDUCTION IN EGYPT: CONTRIBUTING FACTORS, SUSTAINABILITY, AND LESSONS 32 (March 2003), http://pdf.usaid.gov/pdf_docs/PNACY517.pdf.

dimension to the decision-making mechanisms leads to short and long term strategies for environmental protection.¹⁰⁹

Incorporating sustainable development into existing environmental policy involves locally enacting strategies as developed in international declarations and agreements. The most comprehensive example of a local strategy is known as Local Agenda 21,¹¹⁰ which requires "the integration of planning and action across economic, social and environmental spheres."¹¹¹ In the case of Egypt, further steps are to be taken to ensure these policies are properly regulated and enforced. Egypt currently struggles with the enforcement and regulation of existing policies, which extends beyond environmental policy. If steps are not taken to increase regulation of policy, then incorporating sustainable development will be unproductive and ineffective. Further, incorporating sustainable development into existing policy does not mean that development efforts must be halted. "The relationship between development and environment can be maintained through policies and implementation tools. The new economic balance can be harmonized with environmental components without forsaking development."¹¹² Understanding this balance will help developing nations to simultaneously strive to achieve their development goals without undermining the health of the environment as a result.

Further analysis of Egypt's historical and current policy provides a more complete understanding of why Egypt lacks sustainable development in existing environmental policy.

B. Historical Policy and Growth

Egypt's long history and subsequent growth can offer some insight on current economic, social, political, and environmental state today. As a result of Egypt's exponential

¹⁰⁹ 38TH CONGRESS OF THE EUROPEAN REGIONAL SCIENCE ASSOCIATION, SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT-- SOUTHEAST ANATOLIA PROJECT EXAMPLE 2, <http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa98/papers/369.pdf>.

¹¹⁰ See International Sustainability Programs, p. 34.

¹¹¹ The Global Development Research Center, *Local Agenda 21*, available at <http://www.gdrc.org/uem/la21/la21.html>.

¹¹² *Id.*

population growth in the 1980s, the country responded with hurried development.¹¹³ Although the government sought to improve existing services including housing, transportation, telecommunications and water supply, there was an increasing need for continued expansion. Housing was less than adequate; urban neighborhoods were overcrowded, leaving many residents to survive in makeshift accommodations. At that time, the Egyptian government was severely underinvested in the housing sector. Many neighborhoods had access to electricity by the early 1980s but commonly experienced blackouts. At that time, a major sewage project was beginning, which sought to expand the antiquated network of existing sewers and treatment facilities.¹¹⁴ At this time, the governmental policies focused on a public sector development strategy with the goal of improving the standards of living for impoverished families by developing the accessibility of goods and services.¹¹⁵ The government's Economic Reform and Structural Adjustment Programme (ERSAP), which began in 1991 with the support of World Bank, IMF, ADB and other donors,¹¹⁶ was created to improve local living standards while achieving sustainable economic growth. It aims for "stabilization, for the restoration of macro-economic balance and inflation reduction; structural adjustment, for the stimulation of medium- and long-term growth; and current social policies modification, for the minimization of the consequences of economic reform on the poor."¹¹⁷ Secondly, the Social Fund was created to minimize the effect of continued economic reform on impoverished people.¹¹⁸ Economic growth, as the primary governmental concern, was founded on "state intervention in all sectors and the centralized management and decision-making of economic development planning."¹¹⁹ These policies further contributed to the huge budget deficits, and ultimately caused

¹¹³ Chrysanthus Chukwuma, *Environmental, Developmental and Health Perspectives in Egypt*, 6 ENVIR. MANAGEMENT AND HEALTH 29, 29 (1995).

¹¹⁴ HELEN CHAPIN METZ, *EGYPT: A COUNTRY STUDY* 42 (Washington, GPO for the Library of Congress) (1990).

¹¹⁵ *Id.*

¹¹⁶ AFRICAN DEVELOPMENT BANK GROUP, *EGYPT: ECONOMIC REFORM AND STRUCTURAL ADJUSTMENT PROGRAMME, PROJECT PERFORMANCE EVALUATION REPORT (PPER) 1* (May 2000), <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Evaluation-Reports/05092259-EN-EGYPT-ECONOMIC-REFORM-AND-SAP.PDF>.

¹¹⁷ CHUKWUMA, *supra* note 113, at 29.

¹¹⁸ *Id.*

¹¹⁹ Roger Zetter, Al-Moataz Hassan, *Urban Economy or Environmental Policy? The Case of Egypt*, 4 J. OF ENVIR. POLICY & PLANNING 169, 172 (2002).

extreme economic disparities that are pervasive in today's economy.¹²⁰ According to statistics from 2011, Egyptian foreign debt amounts to 37.28 billion dollars.¹²¹

Historically, Egypt's early development was focused on economic development, which failed to incorporate environmental concerns, thus allowing unsustainable development to occur.

C. The Rate of Population Growth

As 96% of the population currently lives within 4% of the land area of Egypt, it comes as no surprise that such urbanization severely strains the local environment. Only 34,000 square kilometers of Egypt's one million square kilometers are inhabitable. The population density of Cairo alone is roughly 93,370 inhabitants per square mile, which is based on conservative population data.¹²² By attempting to mediate between such disparities, the government has focused on short term urbanization instead of the long term environmental consequences that result from such urbanization. Urban growth is considered a critical element of economic growth, as cities are distinguished as the primary economic sectors of a nation state.¹²³ However, "the speed and scale of this urban growth are unequally distributed"¹²⁴ in developing states, who constitute the majority of rapid urbanization. This urbanization places serious strain on the available environmental resources and the state's capacity to "absorb the environmental demands of solid and liquid waste disposal, air and ground pollution"¹²⁵ and results in "the loss of significant environmental habitats and high-quality land."¹²⁶

The state's urban development policy sought to support the progression of industrialization and urbanization by supporting "the provision of housing, infrastructure, land for urban expansion and plans for future physical development."¹²⁷ Subsequently, to facilitate the urbanization of Egypt's major cities, the state implemented several

¹²⁰ CHUKWUMA, *supra* note 113, at 29.

¹²¹ CIA The World Factbook, *Egypt* (July 31, 2012), available at <https://www.cia.gov/library/publications/the-world-factbook/geos/eg.html>.

¹²² Ibrahim Oweiss, *Egypt's Economy: The Pressing Issues*, available at <http://www9.georgetown.edu/faculty/imo3/epe/epe.htm>.

¹²³ ZETTER, HASSAN, *supra* note 119, at 169.

¹²⁴ *Id.*

¹²⁵ ZETTER, HASSAN, *supra* note 119, at 170.

¹²⁶ *Id.* at 170.

¹²⁷ ZETTER, HASSAN, *supra* note 119, at 172.

mechanisms, such as rent control, food subsidies and other services. This consideration for the social aspect of economic growth failed to incorporate the carrying capacity of the surrounding environment and what effect this new development would have on it. The ensuing rapid development left the government unable to maintain building and land-use regulations that met basic environmental standards as "the increasing process of urbanization outstripped the government's ability to cope with its political commitments (in terms of urban services, employment and housing)."¹²⁸ This resulted in the congregation of informal communities that are now pervasive in major cities. Some informal communities, such as Dar al-Salaam, Imbaba, Zawyat al-Harma, Baragil, and Saft al-Laban are comprised of agricultural plots that families were able to purchase. For those families who were not this fortunate, they build their homes on land owned by the state in communities such as Manshiet Nasser and Ezbat al-Haggana, almost all of which is desert land and barely inhabitable.¹²⁹ Informal communities are where many impoverished people and new migrants congregate in an attempt to create their own solution where government approaches have failed. In Cairo alone, more than 70% of the Greater Cairo area population lives in informal communities. Because of the government's failure to deter informal housing development, the proliferation of these settlements further degrades the environment of major cities by encroaching on viable agricultural land and increasing the problems of pollution and proper waste disposal. Many settlements, whether informal or not, lack clean water, sewage systems and other basic amenities. Sadly, the life conditions for the crowds of people that inhabit these areas are very poor. Informal development has also lead to continued encroachment onto viable agricultural land at the periphery of the mega cities located in the Nile Valley. Consequently, the carrying capacity of the Nile Valley has been largely overlooked, and development in this area continues.¹³⁰ This shift toward urbanization has lead to "the concentration of industrial zones and economic activity in Cairo and Alexandria, growing rural-urban migration, increasing demands for housing, intensification of land use and the

¹²⁸ *Id.*

¹²⁹ MARION SÉJOURNÉ, THE HISTORY OF INFORMAL SETTLEMENTS 18, http://www.citiesalliance.org/sites/citiesalliance.org/files/CA_Docs/resources/Cairo's%20Informal%20Area%20Between%20Urban%20Challenges%20and%20Hidden%20Potentials/CairosInformalAreas_Ch1.pdf.

¹³⁰ ZETTER, HASSAN, *supra* note 119, at 171.

demand for urban land, and the emergence of the environmental pressures and degradation that are now at a critical level."¹³¹

While Egypt's population size or rate of growth does not necessarily infer that Egypt's development has occurred in a harmful manner, where this development has occurred is elemental. Because such development has occurred on the only viable agricultural land, Egypt now struggles to nourish its population, and thus has become dependent on agricultural imports to accommodate such disparities.¹³² Since 1974, "Egypt has been a net importer of agricultural commodities,"¹³³ as agricultural imports account for over twenty five percent of all merchandise imports.¹³⁴ This is a "higher proportion than all except for one of the world's 78 middle-income and high-income countries (for whom, on average, food accounts for only 10 percent of imports)."¹³⁵ Egypt will have a serious food shortage if sustainable development practices are not pursued more diligently.

D. Current Efforts and Limits to Success

As a developing country, Egypt's financial resources are limited. Their current policies are often under enforced and are not well integrated. Because Egypt has only 2.92% of arable land throughout the entire country,¹³⁶ in addition to the increasing international demands for sustainable development, the government can no longer place the desire to urbanize ahead of environmental protection and maintenance. Egypt is not unique in this regard, as policies that allow or even encourage environmentally destructive behavior are still pervasive in many developing countries, and even sound environmental policies are hampered by institutional restraints.¹³⁷ Often these policies are not adequately enforced, and financial resources are limited. The primary goals of current development policies related to poverty and water resources in Egypt involve:

¹³¹ *Id.* at 172.

¹³² MITCHELL, *supra* note 4, at 20.

¹³³ *Id.*

¹³⁴ MITCHELL, *supra* note 4, at 20.

¹³⁵ *Id.*

¹³⁶ CIA, *supra* note 121.

¹³⁷ Andy Spiess, *Developing Adaptive Capacity for Responding to Environmental Change in the Arab Gulf States: Uncertainties to Linking Ecosystem Conservation, Sustainable Development and Society in Authoritarian Rentier Economies* 64 GLOBAL & PLANETARY CHANGE 244, 244 (2008).

economic stabilization, structural reform directed to market economy strengthening, for the improvement of resource allocation and sustainable growth restoration, and the creating of a more adequate social safety net to ameliorate the impact of the economic reforms on the poor. Poverty abatement and environmental protection are included in the Government's priority objectives.¹³⁸

While this may be a step in the right direction, it does not promote the proliferation of environmental needs at all levels of policy, which cannot be considered independently.

For sustainable development policies to be successful it is critical that newly initiated strategies are realistic within the context of Egyptian society, and are formulated to accommodate the needs of the individual state. New policies that are created must be based on the unique needs of the Egyptian state, rather than "policy recommendations for mitigating environmental threats such as desertification [that] are conceptualized around Western-derived standards of conduct [. . .] The normative concept of "good governance" and "democracy" are assumed to be adopted by and applicable in non-Western politico-cultural contexts."¹³⁹ Because of this, the success of some developing countries has unfortunately been limited, which speaks to the importance of developing sustainable strategies locally to ensure their success.¹⁴⁰ The Intergovernmental Panel on Climate Change (IPCC) accentuates that "understanding the institutional context in which policies are made and implemented is critical to define sustainable development paths from a climate change perspective."¹⁴¹

E. Mainstreaming Environmental Policy

Incorporating environmental and sustainable development needs into all aspects of Egyptian national policy will allow for more successful policy. The rise in environmental concern in Egypt has largely resulted from the substantial "suffering from poverty and the deep concern with the progress of economic development."¹⁴² However, environmental consciousness is still not widespread, for "the knowledge deficit, in terms of acquisition, production, promotion or diffusion, is still considered as one of the major constraints to

¹³⁸ CHUKWUMA, *supra* note 115, at 29.

¹³⁹ SPIESS, *supra* note 137, at 245.

¹⁴⁰ *Id.* at 244.

¹⁴¹ SPIESS, *supra* note 137, at 244.

¹⁴² SALWA SHARAWI GOMAA, ENVIRONMENTAL POLICY MAKING IN EGYPT 5 (The American University Press 1997 (1997)).

sustainable development in the Arab world."¹⁴³ Those who are most environmentally aware are those who are to be least effected by environmental hazards¹⁴⁴ and it "seems attributable to factors related to socioeconomic status, which in turn has a direct bearing on education and levels of interest in public affairs."¹⁴⁵ General education and awareness that is highly publicized at all socioeconomic levels allows for issues relating to the environment to be completely mainstreamed. This includes incorporating environmental needs and sustainable development into all areas of Egyptian policy.

Egypt has undertaken the creation of several specialized agencies and ministries within the government, such as The Egyptian Environmental Affairs Agency. The EEAA was established in 1982 as a coordinating body for environmental policy making in Egypt. The main objectives of the EEAA are the following:

the development of priorities and follow-up on the implementation of approved plans and programs, formulation of a National Environmental Protection Plan, providing the concerned authorities with the instructions and information necessary to implement this plan, establishment of environmental quality standards that development enterprises in Egypt should adhere to, and the organization of mass media campaigns to promote environmental awareness amongst the public.¹⁴⁶

The EEAA represents the executive branch of the Ministry of State for Environmental Affairs and is the national authority in charge of promoting environmental relations between Egypt and other states, and regional and international organizations. Before the EEAA was established, problems related to the environment were considered as independent problems, and further categorized by sector, such as air pollution or water contamination. While to some extent this still exists, fundamentally, these issues are now perceived as interdependent components that can be considered through a multidisciplinary approach, as encouraged by the United Nations Conference on Environment and Development. Today, more than one hundred nations are undertaking efforts to incorporate environmental concerns into their current policies.¹⁴⁷ Some of these

¹⁴³ SPIESS, *supra* note 137, at 248.

¹⁴⁴ GOMAA, *supra* note 142, at 5.

¹⁴⁵ *Id.*

¹⁴⁶ GOMAA, *supra* note 142, at 8.

¹⁴⁷ THE WORLD BANK, MAINSTREAMING THE ENVIRONMENT 3 (The International Bank for Reconstruction and Development/The World Bank 1995) (1995).

current sustainability projects that seek to mainstream environmental concerns into all levels of policy will now be examined.

F. International Sustainability Programs

The creation of international sustainability programs has provided the basis by which states can enact their own national sustainability programs. In response to the United Nations Conference on Environment and Development, Egypt has attempted to devise and implement a grassroots development policy known as Local Agenda 21 (LA21). Agenda 21, which was the most important soft law document¹⁴⁸ produced at the United Nations Conference on Environment and Development, specifies what actions are necessary if development is to be partnered with global environmental concerns in the hopes of guiding nations towards sustainable development in the twenty-first century.¹⁴⁹ There are four parts to this ambitious policy:

The first highlights the interconnectedness of environmental problems with social and economic issues such as poverty, health, trade, debt, consumption and population. The second stresses the need to manage physical resources such as land, seas, energy and wastes. The third section argues that the role of major social groups needs to be strengthened in decision-making processes. Partnership with women, indigenous populations, local authorities, non-governmental organizations (NGOs), workers and labor/trade unions, business and industry, scientists and farmers are all discussed. The final section focuses on the means of implementation, highlighting the role of governments and non-governmental agencies in funding and technical transfer.¹⁵⁰

Following the conference, many countries adopted LA21, and national strategies for sustainable development were created. LA21 can serve as:

a local-government-led, community-wide, and participatory effort to establish a comprehensive action strategy for environmental protection, economic prosperity and community well-being in the local jurisdiction or area. This requires the integration of planning and action across economic, social and environmental spheres. Key elements are full community participation, assessment of current conditions, target setting for achieving specific goals, monitoring and reporting.¹⁵¹

¹⁴⁸ While the definitions of soft law vary significantly, in this thesis is it used to denote law that is not binding.

¹⁴⁹ International Encyclopedia of Environmental Politics, *Agenda 21* (2002), available at http://www.credoreference.com.library.aucegypt.edu:2048/entry/routenvpol/agenda_21.

¹⁵⁰ *Id.*

¹⁵¹ The Global Development Research Center, *Local Agenda 21*, available at <http://www.gdrc.org/uem/la21/la21.html>.

Currently, Egypt is signatory to LA21 initiatives but very little affirmative action has been taken to establish and implement one. A draft National Agenda 21 was arranged in an effort to minimize the overlap of responsibilities by assigning roles to specific governmental agencies, and in the wake of this draft several pilot projects were prepared at the local level, which are in various phases of completion.¹⁵² The EEAA, "in cooperation with all government bodies, is working to implement Agenda 21 chapters and integrating environment and development in decision-making."¹⁵³ A significant barrier to the successful implementation of LA21 in Egypt is a financial one, as financial support for many municipalities is severely lacking. Local governments have reported that cooperation with national governments has been insufficient. Additionally, many municipalities lack expertise in the field of sustainable development, and thus they depend on external support systems, such as non-governmental and international organizations based in Egypt.¹⁵⁴

G. Environmental Governance

As with many developing countries, Egypt's environmental policy requires substantial revisions, as some sections are antiquated. Additionally, existing laws are not strongly enforced or regulated. The most recent law known as the Environmental Protection Law of 1994, which was amended by Law 9 of 2009, demonstrates the urgency of improved legislation, as many of its articles are antiquated. However, this is not the greatest barrier to successful environmental policy that integrates sustainable development. The greatest barrier lies in the implementation, regulation and enforcement of these laws, as a result of ministry overlap and general lack of imperative. "Problems such as lack of information and comprehensive data, multiplicity of authorities and implementing organisations with inadequate coordination, cultural constraints, lack of financial and human resources, lack

¹⁵² *Id.*

¹⁵³ UNITED NATION EGYPT COUNTRY PROFILE REPORT, JOHANNESBURG SUMMIT 21 (2002), <http://www.un.org/esa/agenda21/natlinfo/wssd/egypt.pdf>.

¹⁵⁴ INTERNATIONAL COUNCIL FOR LOCAL ENVIRONMENTAL INITIATIVES (ICLEI) CANADA, LOCAL GOVERNMENTS' RESPONSE TO AGENDA 21: SUMMARY REPORT OF LOCAL AGENDA 21 SURVEY WITH REGIONAL FOCUS 5 (2002), <http://www.scribd.com/doc/13893885/Local-governments-response-to-Agenda-21>.

of skilled labour with environmental expertise, and corruption result in the insufficient monitoring and enforcement of environmental laws."¹⁵⁵

There are very few qualified environmental professionals available in Egypt. The general public is not aware of environmental problems or the subsequent solutions, which results in low levels of compliance with environmental laws. This can be attributed, at least in part, to a lack of environmental education for the general public. The regulatory agencies that monitor compliance with such laws further lack the authority and available resources to ensure enforcement. Additionally, the coordination and cooperation between such agencies is insufficient and further renders them unable to ensure environmental protection.¹⁵⁶ Several ministries are involved in environmental affairs and without clear guidelines of how environmental laws will be regulated, it is becomes clear that gaps and overlaps are likely to exist.

Historically, the EEAA remained a rudimentary body with weak authority until 1990. At that time, the most significant environmental laws were:

1. Law 48 of 1982, which safeguards the Nile and its waterways
2. Presidential Degree 631 of 1982 establishing the Egyptians Environmental Affairs Agency
3. Law 102 of 1983 concerning natural protectorates
4. Law 101 of 1985 levying a charge on air tickets earmarked for tourist development and environmental protection¹⁵⁷

The regulation and enforcement of these laws were extremely weak, and their content was incomplete, rife with gaps. Law 48, for example, addresses the protection of the Nile from municipal and industrial pollutants, yet the disposal of such wastewater into the Nile still occurs. This may be attributable to the lack of "realistic phasing of discharge reductions to meet its standards."¹⁵⁸

¹⁵⁵ Amanda Kiely, *Environmental Protection, Urban Development, Municipal Solid Waste Management and Heritage Conservation in Egypt*, 5 MACQUARIE J. INT'L & COMP. ENVTL. L. 199, 201-202 (2008).

¹⁵⁶ *Id.*

¹⁵⁷ TAREK GENENA, FROM ENVIRONMENTAL PLANNING TO ENFORCEMENT: A CASE STUDY FROM EGYPT, Fourth International Conference on Environmental Compliance and Enforcement 3, http://egyptchm.org/chm/convention/pdf/planning_to_enforcement.pdf.

¹⁵⁸ *Id.*

When considering the historical policies that were in place at this time, as mentioned above, it is easy to see why these laws were not regulated. The policy focus at that time was on urbanization, which did not allow for the protection of the environment. It was not until the 1990s that the government sought to establish a regulatory body for environmental management, which came in the form of the National Environmental Action Plan and the Environmental Law of 1994. The greatest constraint to the Plan is in the perception and vision of what it seeks to create. On the national level, the government anticipated that the Plan would be project-oriented, and provide the technical knowledge and financial resources necessary to ensure the implementation of the projects. The World Bank, on the other hand, as the leading counterpart, was more interested in suggesting policy reforms and institutional steps that could be implemented. The only plan that was briefly outlined was an investment program founded on unclear project ideas.¹⁵⁹ In this regard, the Plan has not been a plan at all, but rather an environmental policy report that offers project ideas. Additionally, the Plan, which was not carefully conferred between its various stakeholders, was assumed to be proposing an action plan that the Environmental Agency would carry out, rather than the government at large. The Plan itself, however, proposes an assimilated policy action that alone, the Environmental Agency can do very little to fulfill because of its status as a coordinating body with limited authority and lack of enforcement capabilities. Furthermore, the financial requirements to fulfill the Plan were not adequately assessed,¹⁶⁰ resulting "in a serious discrepancy between resources needed and those actually available for operationalization of the Plan."¹⁶¹ Although the Plan highlighted policy and institutional actions, it did not adequately specify which policy tools were required to ensure that these actions were implemented successfully.¹⁶²

The Law for the Protection of the Environment of 1994 is difficult to implement due to "the same factors that render other laws unimplementable, [such as] affordability, practicality, realism, and flexibility."¹⁶³ To begin, it can be very expensive to supervise and protect the environment and natural resources, and it requires personnel to be trained

¹⁵⁹ GENENA, *supra* note 157, at 3.

¹⁶⁰ *Id.* at 4.

¹⁶¹ GENENA, *supra* note 157, at 4.

¹⁶² *Id.*

¹⁶³ GENENA, *supra* note 157, at 5.

with environmentally-specific skills. In Egypt, there are a very limited number of environmental professionals making this even more difficult. The EEAA lacks the resources and the "technical skills to follow-up and conduct inspections during and following construction [of projects], to verify that the investor has implemented the recommended mitigation measures and has followed the EEAA recommendations."¹⁶⁴

As with the Plan mentioned above, it is difficult to determine which ministries and organizations are responsible for role-specific monitoring. It is probable that the legislators who created this law were not adequately knowledgeable when it came to conceptualizing the risks and expenses associated with the enforcement of this law,¹⁶⁵ as "little emphasis has been given to issues, such as environmental risks and costs, variation in environmental performance, and carrying capacity (existing pollution levels of ambient water and air quality)."¹⁶⁶ The lack of economic incentives that could serve to both "encourage compliance with the laws and provide revenue for their enforcement"¹⁶⁷ makes it difficult to assess "the technical implications of the law that would influence the degree of compliance."¹⁶⁸ The lack of communication between the involved ministries is a serious problem, and results in either substantial overlap or gaps in terms of participation. Finally, the Plan and the law were prepared in isolation from each other, leading to a lack of interaction and ultimately resulting in inconsistencies and an unsteady transition toward management of the environment and natural resources. This can be seen on the ground by the apparent lack of enforcement which leaves Egypt's natural environment at risk to harmful human behavior. To date, court orders filed for breeches of the environmental law have yet to be implemented.¹⁶⁹

The government of Egypt stands to benefit substantially by creating coalitions with local organizations that are committed to sustainable development, environmental management and protection. Engaging such organizations will allow for more adequate enforcement:

¹⁶⁴ Rifaat Abdel Wahaab, *Sustainable Development and Environmental Impact Assessment in Egypt: Historical Assessment*, 23 THE ENVIRONMENTALIST 49, 61 (2003).

¹⁶⁵ GENENA, *supra* note 157, at 5.

¹⁶⁶ WAHAAB, *supra* note 164, at 65.

¹⁶⁷ KIELY, *supra* note 155, at 210.

¹⁶⁸ GENENA, *supra* note 157, at 5.

¹⁶⁹ *Id.*

Successful environmental governance often depends on building social capital and productive linkages between state agencies and local networks and organizations. Scholars have described instances where civil society enables and supplements the information-gathering, implementation, and enforcement activities of coherent, autonomous public sector actors as a form of "state-society synergy" (Evans, 1996), "co-production" (Ostrom, 1996), or "embedded autonomy" (Evans, 1995). Even where state-society relations have been generally characterized as exclusionary and antagonistic, coalitions of local state officials and engaged citizens have been able to create successful policy reforms.¹⁷⁰

This is especially relevant for Egypt because it does not have the financial resources necessary to ensure enforcement of and adherence to environmental laws. Currently, the relationship between the government of Egypt and the local organizations combating environmental concerns is primarily informal and inconsistent. A very small handful of NGOs work directly with the EEAA, however, it is interesting to note that many NGOs maintain personal contacts with those employed through the EEAA.¹⁷¹ This shows that "most NGO activities are based on individual rather than group efforts. It also accentuates the Egyptian belief that personal or informal channels of communication are usually more effective than organizational or formal ways of achieving one's objectives."¹⁷² This is most likely because historically, trust in the government is not strong nor is the legislation reliable, which will be discussed in more detail below. If the government works consistently in alliance with NGOs, it stands to benefit significantly, as "competition among interest groups leads to an efficient internalization of detrimental externalities,"¹⁷³ and the likelihood of the regulation of environmental laws will be stronger.

The economy can be influential in establishing standards for environmental quality and in the planning of regulatory frameworks.¹⁷⁴ Improving the local economy can lead to advancements in sustainable practices. The economy can serve as a stressor of the environment, "for instance, production in the industrial and agricultural sectors contributes to pollution of the air and water, and the generation of solid and hazardous

¹⁷⁰ Jeannie Sowers, *Nature Reserves and Authoritarian Rule in Egypt: Embedded Autonomy Revisited*, 16 J. OF ENVIR. DEV. 375, 378 (2007).

¹⁷¹ GOMAA, *supra* note 142, at 27.

¹⁷² *Id.*

¹⁷³ Wallace Oates, *The Political Economy of Environmental Policy*, 1 HANDBOOK OF ENVIR. ECON. 326, 330 (2003).

¹⁷⁴ OATES, *supra* note 173, at 326.

wastes. Consumption activities lead to the production of solid waste, and create demand for wastewater treatment services."¹⁷⁵ Examples of this are the unlawful dumping of waste substances, inadequate waste water removal that pollutes scarce water resources, and the encroachment of businesses onto viable agricultural land. But encouraging economic development can also serve as a key factor for protecting the environment, in that successful businesses are better able to afford investments in environmental protection. This can also be said for high per capita income, "which implies a greater ability to pay for environmental services, such as solid waste collection and disposal, and wastewater treatment [. . .] higher incomes are [also] strongly correlated with a higher demand for environmental quality."¹⁷⁶ The United States and Europe have started to incorporate "economic prescriptions for policy measures"¹⁷⁷ into environmental legislation relatively successfully,¹⁷⁸ through the use of "taxes to discourage polluting activities and the introduction of systems of tradable emission allowances."¹⁷⁹ Taxes to discourage polluting activities have been successful in Europe, whereas the United States, perhaps due to its "rather extreme aversion to new forms of taxation"¹⁸⁰ has implemented tradeable emissions allowances in the hopes of decreasing local pollution. Additionally, some countries are adopting policies that offer incentives for adhering to environmental standards.

It is difficult to say which method would be successful in Egypt. It is clear, however, that changes need to be made as:

The main issues endemic to public policy in Egypt remain-- coordination between line ministries, enforcement of environmental laws, engaging popular participation, technical capacity for implementation, sectoral versus cross-sectoral approaches of policy formulation and dependency on external financial resources. Above all, the continuing decline in the environmental conditions of the urban poor remains a formidable challenge to the political and technical will of Egypt.¹⁸¹

¹⁷⁵ WAHAAB, *supra* note 164, at 49.

¹⁷⁶ WAHAAB, *supra* note 164, at 49.

¹⁷⁷ OATES, *supra* note 173, at 348.

¹⁷⁸ *Id.*

¹⁷⁹ OATES, *supra* note 173, at 348.

¹⁸⁰ *Id.*

¹⁸¹ ZETTER, HASSAN, *supra* note 119, at 181.

Most importantly, studies show that raising local awareness will also be an important aspect of policy reform as "the continuing decline in the environmental conditions of the urban poor remains a formidable challenge to the political and technical will of Egypt. These needs still remain to be properly addressed."¹⁸² It is significant that environmental awareness in Egypt has been increasing since the United Nations Conference on Environment and Development as can be seen by the establishment of the Law of 1994 and its subsequent amendments, and the growing prevalence of NGOs who encourage environmental protection and maintenance. Egypt has received external pressure from the international donors such as the World Bank to adopt sustainable development agendas, and has responded to such pressure by amending current policies and establishing new ones. In this way, Egypt may be seen by other developing countries as a model for initiating some progress in relation to incorporating environmental needs into current development policies.¹⁸³ With that in mind, Egypt has still struggled significantly with enforcement and regulation of existing environmental frameworks, which have a causal link with the authoritarian rule that has governed the state for decades.

H. Authoritarian Rule

The authoritarian rule that has governed Egypt for many decades has negatively influenced the success of existing environmental frameworks. "Egypt has increasingly been seen as a regional model for other Arab states in terms of protected-area management and biodiversity protection,"¹⁸⁴ yet public policy analysis of Arab states shows that these countries lag behind other developing countries around the world. In Egypt, the lack of enforcement and regulation of existing environmental frameworks is the result of authoritarian rule, which often restricted the independence of various organizations:

The Mubarak regime, as part of a strategy of political "deliberalization," has increasingly curtailed the autonomy of organizations that directly impact the realm of formal politics, such as political parties, civil society organizations, and social movements (Kassem, 2004; Kienle, 2001). Yet the autonomy of nascent regulatory agencies, such as the NCS [Nature Conservation Sector of the EEAA],

¹⁸² *Id.*

¹⁸³ ZETTER, HASSAN, *supra* note 119, at 182.

¹⁸⁴ SOWERS, *supra* note 170, at 376.

is also subject to reversals and erosion, arising from conflicts among executive institutions within the state apparatus.¹⁸⁵

When key organizations, and even state institutions, lose their autonomy it has a direct effect on the programs they are seeking to maintain and regulate. Furthermore, "when such communities are systematically marginalized by the central government,"¹⁸⁶ they are rendered immobilized. Egypt's history has seen serious proliferation of corruption, the mismanagement of funds, and the ultimately debilitation of several state ministries, including the Ministry of the Environment.¹⁸⁷

All financial resources are directly dispersed by the central government, rather than individual ministries allocating funds to various programs. "In Egypt, there is a strong sense that budget decisions are highly centralized and discretionary. Governorates have considerable local executive power but have virtually no own-source revenue; they are dependent on the central government for all budget allocations."¹⁸⁸ Mubarak's regime, described as a "punishment regime"¹⁸⁹ used certain tactics to ensure the protection of the regime. First, there was a clear bias against those who were not members of the hegemonic party, and against those who supported the opposition. Those representatives could expect to suffer from minor resource allocations, whereas those who supported the regime could expect developmental resources to be funneled to their sectors. The availability of funds was often inconsistent and highly dependent on regime biases. An example of this is shown in governmental offices that are unwilling to contend with the opposition for fear of punishment and a decrease in financial resources:

according to one Muslim Brotherhood parliamentarian, the regime 'tells government offices not to deal with us- and even those government officials who know us very well fear to help us because they can be punished'. Certain areas that are known to be anti-NDP-- like Port Said-- may also be 'bumped down' in priority for infrastructure development, forcing them to wait longer for a budget allocation.¹⁹⁰

¹⁸⁵ *Id.* at 377.

¹⁸⁶ SOWERS, *supra* note 170, at 377.

¹⁸⁷ LISA BLAYDES, *ELECTIONS AND DISTRIBUTIVE POLITICS IN MUBARAK'S EGYPT* 67 (Cambridge University Press, 2011) (2011).

¹⁸⁸ *Id.*

¹⁸⁹ BLAYDES, *supra* note 187, at 68.

¹⁹⁰ BLAYDES, *supra* note 187, at 72-73.

Additionally, development ministries are further deprived of necessary funds as a result of parliamentary corruption, which results in the siphoning of governmental resources. "Parliament has very little, if any, independent political power, and the irrelevance of parliament to the decision making process is highlighted by the fact that not once has it submitted and passed a bill that was not *a priori* fully endorsed by the government."¹⁹¹ Yet positions in parliament are highly sought after because of the financial benefits, as a result of corruption, and the immunity that it ensures. These members of parliament become bound to the regime "because investing members of the elite in below-board activities makes these individuals vulnerable to charges of economic and other crimes under either the current regime or some future democratic or authoritarian government,"¹⁹² thus "structural adjustments has led to a shrinking of ministry budgets."¹⁹³ Institutionalized corruption "increases both income inequality and poverty,"¹⁹⁴ which is pervasive in Egypt. Finally, "corruption also erodes support for a political system, suggesting that corruption itself carries important political costs,"¹⁹⁵ costs that Egypt has paid for heavily, and ultimately reached a critical level where "the equilibrium is no longer self-enforcing."¹⁹⁶ One could then surmise that this played a role in the political instability that resulted in the January revolution.¹⁹⁷ Without the proper funds, the ministries cannot function. The cost of ensuring the maintenance of environmental standards and sustainable development alone is very high, and without these funds the ministry has been rendered impotent and consequently unable to regulate the enforcement of environmental laws.

I. Post-Revolutionary Egypt

The January 2011 Revolution in Egypt provided the platform by which new policies could be implemented; it also offers hope for the successful enforcement of such law. Following the Revolution that ousted former President Mubarak, Egypt continues to undergo substantial and systematic changes, which lead to a newly established cabinet

¹⁹¹ *Id.* at 126.

¹⁹² BLAYDES, *supra* note 187, at 126.

¹⁹³ *Id.* at 130.

¹⁹⁴ BLAYDES, *supra* note 187, at 147.

¹⁹⁵ *Id.*

¹⁹⁶ BLAYDES, *supra* note 187, at 147.

¹⁹⁷ *Id.*

and a presidential election. The historical authoritarian rule has led to serious corruption, mismanagement of funds, and an unstable political economy. Now, Egypt is embarking on a new era, in the hopes of achieving democracy. This transition began with the "arrests of high-profile businessmen, the dissolution of the government's ruling party, and promised elections for the parliament and presidency, forms of political engagement have proliferated across the country."¹⁹⁸ Although change cannot occur overnight, Egyptians remain hopeful that change will occur. It may take time for the enforceability of law to be reliable, if the proper legal foundation is in place, and the desirability of enforcing such law persists, the likelihood of their regulation is greater. Without improving the regulation and enforcement of existing law, incorporating sustainable development practices and policy will be ineffective. It will only result in a more comprehensive policy that is not adhered to. In this regard, the changes that Egyptian policy stands to benefit from with this transition are twofold: increased transparency and regulation of law in addition to incorporating sustainable development policy. Furthermore, integrating a sustainable development plan such as Local Agenda 21 allows Egypt to modify the policy to address their individual needs as a state; this transformed policy could translate into its successful implementation. This combination will allow Egypt to continue to develop, to decrease poverty, incorporate new land use practices, and to stimulate the economy, while protecting the longevity and health of the natural environment in which they live. Hopefully, the regulation of law will encourage the integration and adaptation of sustainable development practices. The final chapter will examine water resource management as a mechanism for understanding how policy becomes practice, and thus identify where improvements can be made.

¹⁹⁸ Jeannie Sowers, *Institutional Change in Authoritarian Regimes: Water and the State in Egypt in Comparative Environmental Politics: Theory, Practice, and Prospects* (Paul F. Steinburg and Stacy D. VanDeveer, Eds. 2012) at 254.

IV. Water Resource Management

Current Egyptian policies do not reflect the increasing importance of sustainable development. Many policies undermine the state of the environment. Egypt's environmental laws are outdated, and for many reasons remain unenforced and unregulated. Under international law, Egypt has the right to continue developing, as long as such development does not come at the cost of the environment.¹⁹⁹ The theory of sustainable development recognizes that meeting the basic needs of a developing country is a critical step towards development as a whole, and offers governments certain concepts and tools to achieve local needs sustainably.²⁰⁰ Egypt's history and its desire for economic, political and social growth have led to rapid development that continues to be achieved in unsustainable ways. Egypt has the potential to benefit from environmental policies that ensure that the security of the environment is not undermined. Egypt has attempted to create and regulate various international policies, but many obstacles have rendered them unsuccessful. One of the barriers to environmental policy in Egypt is the lack of regulatory measures to implement the laws it has set forth, and an inconsistent reliance on external organizations, such as international NGOs, to support such policies.²⁰¹ Additionally, the consistent oppression of an authoritarian and corrupt regime for several decades has made obtaining sustainable goals inconceivable. In light of the 25 January 2011 Revolution, which resulted in the dismantling of former President Mubarak's regime, the creation of new environmental policies and their enforcement now seems attainable. The Egyptian people are hopeful, and are dedicated to a new Egypt, where laws and policies mean more than just another avenue for corruption. Because the country continues to transition, it may take time for the enforceability of law to become reliable. With the proper legal foundation it is more likely that such laws will be regulated. Hopefully the regulation of environmental laws will translate to more sustainable development practices and encourage the fostering of water resource management.

¹⁹⁹ DECLARATION ON THE RIGHT TO DEVELOPMENT, *supra* note 31.

²⁰⁰ OUR COMMON FUTURE, *supra* note 6.

²⁰¹ SOWERS, *supra* note 170 at 375.

Proper water resource management, and new and inventive avenues for increasing water resources, is extremely important for Egypt. Water pollution is currently degrading the quality of water, and is just as harmful as the decreasing quantity of water that is available. As with environmental policy, the policies surrounding water resource management lack cohesion and the involved ministries are isolated. While the Ministry of State for Environmental Affairs is the principal environmental authority,²⁰² several other ministries and international non-governmental organizations are affected by environmental issues and thus play a role in the regulation of policies. This fragmentation and lack of communication results in serious gaps and overlaps of policies and projects currently underway.²⁰³ The lack of consistent funds makes the realization of such projects extremely difficult. The government has responded to water resource limitations by establishing projects that increase water yields, which are short term goals, and do not focus on the needs of future generations, or at the current rate of water consumption, the needs of this generation in the future.

A. Importance of Water Resource Management

Effective water resource management, as well as devising programs to increase water resources, is very important for Egypt as a country that has such finite amounts of water available. Water pollution is degrading the quality of the water, which is just as serious as the decreasing quantity of water. Egypt is primarily constituted by dry, desert lands.²⁰⁴ Agricultural production is concentrated in the Nile Delta and Nile Valley, where the land is most fertile, and crops are irrigated by water from the Nile. The remaining countryside, however, faces extreme water scarcity. With the growing population, more and more people rely on the Nile as their main source for water. Despite the rich soil deposits that the Nile brings to the Delta, land degradation is increasingly widespread. Every year, desertification and soil degradation claim more peripheral territory of Egypt's productive

²⁰² GOMAA, *supra* note 142, at 8.

²⁰³ GLOBAL DEVELOPMENT, *supra* note 111.

²⁰⁴ Koko Warner, *Global Environmental Change and Migration: Governance Challenges*, 20 GLOBAL ENVIR. CHANGE 402, 409 (2010).

strip of land. Desertification, water shortages, including lack of sufficient precipitation, water pollution and salinity, and soil problems cause rural populations to migrate.²⁰⁵

The numerical accounts of environmental degradation in Egypt are staggering. Throughout the country, examples of environmental degradation abound:

around 30 percent of irrigated farmlands suffer from soil salinity, while in the Northern Delta and both the Middle and Southern Delta regions, 60 percent and 20 percent respectively are known to be salt-affected soils. Wind erosion affects 90 percent of the country, while soil loss due to wind erosion varies from 4.5 to 66.9 tons/ha/year. An estimated 1.6 million hectares of overall area is influenced by the active encroachment of sand and sand dunes. The productivity of land has diminished by 25 percent, when compared to its original productivity. It is estimated that the annual erosion rate is between 0.8 and 5.3 ton/ha/year. Finally, it is also found that the losses of plant nutrients, such as nitrogen, phosphorus and potassium are directly correlated to soil loss.²⁰⁶

Egypt's main source of water is the Nile River, of which 96% originates outside its territory.²⁰⁷ "About 350 industries are discharging their sewage-water either directly into the Nile or through the municipal system,"²⁰⁸ and rain water during the winter months and non-renewable ground aquifers provide unreliable water resources.²⁰⁹ Thus water resource management is of critical importance to Egyptian policy. Furthermore, the quantity of water imposes limitations on the economic development of Egypt. Because of increasing development, and poor environmental management, the ground and surface water quality is significantly deteriorating.²¹⁰

Water contamination is one of the greatest problems that Egypt currently faces. Water sources are polluted by "untreated or inadequately treated domestic and industrial wastewater, improper use of fertilizers and pesticides, solid waste disposal and unplanned urban and rural development."²¹¹ All of these pollutants increase the toxicity of the water

²⁰⁵ Koko Warner, Tamer Afifi, Olivia Dun, Marc Stal, Sophia Schmidl, *Human Security, Climate Change, and Environmentally Induced Migration* UNU-EHS REPORT 1, 17 (2008).

²⁰⁶ WARNER, *supra* note 199.

²⁰⁷ Magdy Hefny, Salah El-Din Amer, *Egypt and the Nile Basin*, 67 *AQUAT. SCI.* 42, 42 (2005).

²⁰⁸ HUSSEIN ABDEL-SHAFY, RAOUF ALY, WATER ISSUE IN EGYPT: RESOURCES, POLLUTION AND PROTECTION ENDEAVORS 1 (2002), http://www.omfi.hu/cejoem/Volume8/Vol8No1/CE02_1-01.html.

²⁰⁹ *Id.*

²¹⁰ Bayoumi Attia, *Water as a Basic Human Right in Egypt: The Understanding of Water in the Arab Countries of the Middle East-- A Four Country Analysis* 37 (Global Issue Papers, 11, 2004).

²¹¹ S.T. Abdel-Gawad, *Water Quality Challenges Facing Egypt*, *COMPARATIVE RISK ASSESSMENT & ENVIR. DECISION MAKING* 335, 337 (2004).

and without adequate means for controlling them will ultimately render the water quality unsuitable for many uses. Currently, there is little in the way of pollution regulation, and illegal polluting practices are widespread.²¹²

These problems, unfortunately, are not unique to Egypt. Many other developing states experience the harmful consequences of unsustainable development. These states can seek to minimize local environmental degradation and work towards sustainability by developing adequate water resource management policy. In this regard water resource management is one policy that can be improved to make Egypt a more sustainable state.

B. Challenges Confronting Water Management

Many challenges are currently hindering water resource development and management in Egypt, challenges that unfortunately are not unique to water, such as the vast fragmentation of responsibilities across institutions, which creates problems of overlapping duties in some instances and gaps that are not covered in others. The lack of coordination and communication between these various stakeholders, and the constraints created by a general lack of finances, poor technical viability and economic feasibility continue to perpetuate.²¹³ Because the involved ministries cannot rely on the Egyptian government for finances to fund their projects, water resource management currently relies heavily on donor contributions and the work of NGOs. New environmental policies will need to ensure the reliability of funds for water resource management, so that there is less pressure to rely on these outside sources.

The rise in population of Egypt has a direct effect on future availability of water resources and water quality. "The population has doubled in the last 40 years from 33 million in 1965 to 67 million in 2001,"²¹⁴ and experts anticipate it reaching between 90-100 million by 2025. Not only will this large population diminish the amount of arable land, it also will put an even greater strain on the scarce water resources. Additionally, Egypt has already developed the majority of its water resources and such resources are quickly declining, which will ultimately compel the government to be inventive with new

²¹² *Id.* at 338.

²¹³ ATTIA, *supra* note 205, at 40.

²¹⁴ ABDEL-GAWAD, *supra* note 206, at 336.

water strategies, which are likely to be very costly.²¹⁵ The amount of pollution also takes a heavy toll on the sources of water as a result of "increased industrial and agricultural activities and insufficient sanitary facilities."²¹⁶ Previous development projects have further deteriorated the quality and longevity of water sources, especially when such projects are inadequately introduced.²¹⁷ Finally, "the water sector in respect to exploration, research, development, technologies and management requires considerable investment far larger than presently allocated. The most fundamental problem is the insufficiency of financial resources."²¹⁸

C. Legal Framework

The legal framework as it relates to water in Egypt is fairly limited and antiquated. The policy that does exist has created serious ministry overlap, which decreases their productivity and effectiveness. Egypt is currently listed in the top ten countries that will suffer from water shortages by 2025,²¹⁹ which makes the management of water resources ever more imperative. For water management and protection of water resources to occur, the relevant ministries "need the support of a legal framework that provides the water managers with guidelines and instruments for the planning of new developments, the allocation of water, the operation management and maintenance of the irrigation and drainage system, the management of water quality and the financing of these activities."²²⁰ Enhancing the legal sustainable development framework ensures more effective programs that aim to control water quality and resource management by providing standards for regulation that specifically target water.²²¹ Currently, the laws that exist do not provide this structure, as they only briefly mention water-related issues:

1. Law 12 of 1984, on irrigation and drainage²²²
2. Law 213 of 1994, on farmer participation and cost sharing²²³

²¹⁵ *Id.*

²¹⁶ ABDEL-GAWAD, *supra* note 206, at 336.

²¹⁷ *Id.* at 337.

²¹⁸ ABDEL-GAWAD, *supra* note 206, at 337.

²¹⁹ ABDEL-SHAFY, ALY, *supra* note 203, at 1.

²²⁰ ATTIA, *supra* note 205, at 45.

²²¹ ABDEL-GAWAD, *supra* note 206, at 345.

²²² ATTIA, *supra* note 205, at 45.

²²³ *Id.*

3. Law 93 of 1962, standards for liquid waste disposal to sewers²²⁴
4. Law 27 of 1978, regulation of water resources and treatment of waste water²²⁵
5. Law 48 of 1982, safeguarding the Nile and other waterways²²⁶
6. Decree 380 of 1982, industrial water pollution control²²⁷
7. Law 4 of 1994, for the environment²²⁸

Of these laws, the two that primarily govern water quality legislation are Law 48/1982 and Law 4/1994. Law 48 provides the foundational legislative framework to protect surface and groundwater against pollutants. The law distinguishes between 'fresh' water, under which the Nile and the irrigation canals are included, non-fresh or 'brackish' water, under which are drains, lakes, and ponds, and groundwater aquifers. In order to discharge wastewater, a license must be obtained from the Ministry of Water Resources and Irrigation (MWRI). The Ministry of Health and Population (MOHP) is responsible for monitoring the effluents. The law stipulates that only discharge of treated industrial wastewater is permitted into fresh water bodies, whereas treated industrial wastewater is permitted into brackish water bodies. It also regulates the reuse of drainage water. Furthermore, the law establishes a fund that can be used for research, administration and related incentives, which is financed by fines and revenues. Overall, the law seeks to provide water quality standards for both domestic and industrial discharging in the Nile and canals, and receiving water bodies.²²⁹ Currently Law 48 has very rigid standards that hamper compliance and enforcement. If this law was to be strictly enforced, it would require extremely high industry and municipality investments, which are not realistic for present or anticipated resources. It also would prohibit the reuse of treated municipal wastewater. In order for this law to serve as a more effective tool for pollution control, it will need to become more flexible.

²²⁴ ABDEL-GAWAD, *supra* note 206, at 345.

²²⁵ THE MINISTRY OF WATER RESOURCES AND IRRIGATION, ARAB REPUBLIC OF EGYPT: INTEGRATED WATER RESOURCES MANAGEMENT PLAN 14 (June 2005), <https://openknowledge.worldbank.org/handle/10986/8320?show=full>.

²²⁶ ATTIA, *supra* note 205, at 45.

²²⁷ MWRI, *supra* note 220, at 14.

²²⁸ ATTIA, *supra* note 205, at 45.

²²⁹ Egyptian Law 48 of 1982, Protection of the Nile and its Canals, Article 63.

Law 4, as mentioned in Chapter 2, governs environmental issues in Egypt. In addition to mandating the creation of the EEAA and its subsequent regulations, Law 4 prohibits throwing, treating or burning garbage and solid waste near water-ways, except in designated areas. It prohibits the spraying or use of pesticides or any other chemical compound,²³⁰ except in a way that "will not expose humans, animals, plants, waterways and other components of the environment, directly or indirectly, now or in the future, to the harmful effects of such pesticides or chemical compounds."²³¹ It further aims to protect the water environment from pollutants such as oil, harmful substances whether liquid or otherwise, sewage, garbage, and land based sources including untreated substances, wastes or liquids.²³²

The relation between Law 48 and Law 4 is not clear, resulting in significant overlap. For example, Law 4 states that it will be applied "without prejudice to the application of the provisions of Law 48/1982 concerning the protection of the river Nile and waterways from pollution"²³³ and furthers that Law 4 only covers coastal and seawater aspects.²³⁴ Yet Law 4 specifically includes the Nile River and waterways in its definition of "discharge" as related to pollution.²³⁵ This confusion is further amplified by ministry overlap. The MWRI is the authority responsible for water quality and water pollution issues, and the EEAA responsible for coordinating the pollution monitoring networks, although it is unclear how these responsibilities relating to pollution are separated.

Another example of how these laws are non-complementary is in licensing requirements. Law 4 states that all establishments discharging wastewater are required to obtain a license and "shall keep a written register to record the impact of his establishment activities on the environment. The register should include data on emissions, efficiency and outflow from treatment units and periodic measurements."²³⁶ The EEAA will facilitate yearly inspections and follow-ups conducted with any

²³⁰ Egyptian Law 4 of 1994, Promulgating the Environmental Law and its Executive Regulation, Articles 37-38.

²³¹ LAW 4, *supra* note 225, at Article 38.

²³² *Id.* at Article 46-71.

²³³ LAW 4, *supra* note 225, at 2.

²³⁴ *Id.*

²³⁵ LAW 4, *supra* note 225, at 5.

²³⁶ LAW 4, *supra* note 225, at Article 19-22.

establishments found to be non-compliant.²³⁷ This provision creates confusion and duplication, as Law 48 states that in order to discharge wastewater, a license must be obtained from the MWRI, and the MOHP is responsible for monitoring the effluents. It continues by stating that the only official laboratory results are those samples collected and tested by the MOHP.²³⁸

Finally, the regulation of these two laws [Law 48 and Law 4] are "affected by the competing interests of the concerned authorities whose mandate are intended for control of different end-uses and may not lay within the framework of water quality management."²³⁹ To account for some of these shortcomings, reform to the Egyptian water sector has been undertaken, beginning in 2004, after the issuance of Presidential Decree No. 136. Since that time, numerous Water Law drafts have been completed, yet to date no Water Law has been adopted. One of the primary purposes of adopting a new Water Law will be to strengthen government authorities, such as the Egyptian Water Regulatory Agency (EWRA), that regulate and enforce Egypt's water and wastewater sector.²⁴⁰ These appropriate policies are required to guarantee both the successful and resourceful use of all water available in Egypt and to encourage the development of new water-related programs.

D. Governmental Responses

In response to the water management issues that Egypt faces, the government has responded by striving to optimize available water resources, improve irrigation techniques, and reusing groundwater and agricultural drainage water. These policies are not being implemented, and water waste continues. For example, the Ministry of Water Resources and Irrigation, the prime ministry in charge of authorizing water use and the

²³⁷ *Id.*

²³⁸ LAW 48, *supra* note 224, at Article 60.

²³⁹ ABDEL-GAWAD, *supra* note 206, at 345.

²⁴⁰ USAID EGYPT, A LEGAL DOCUMENT WHICH SERVES AS THE BASIS FOR THE NEW EGYPTIAN WATER LAW 1 (January 2012),

https://docs.google.com/a/gmavt.net/viewer?a=v&q=cache:VoacVTLGCHEJ:www.wprregypt.com/VirtualFileSystem/VirtualFileSystem.ashx?path%3Dfile%2BSystem%252FReports%252FDeliverables%252FWPRR%2BReport%2Bon%2BLegal%2BBasis%2Bfor%2BWater%2BLaw_FINAL.pdf+&hl=en&gl=us&pid=bl&srcid=ADGEESiiaq_4ISgBwCsvOKEe7wlGJMRYdFKeq4Iy_VrjteLhO4YELxWYaF44eKiwtIEYaFwq_E7CXDhGydO6Dozfm55MZvjkWJGR250EFBirPf46NF51CNghU8_jkbVIzgdHVyJXZVm&sig=AHIEtbRRnAvO0Gv6Fo51SGR-SqASSWK04A.

management of such resources, has adopted several policies in the attempt to achieve sustainability.²⁴¹ They focus "simultaneously on major aspects of water resources, including supply and demand management, and quality and quality management. It also considers the integration of socio-economic and environmental aspects in water management, and the involvement of stakeholders in the various management activities."²⁴²

The Egyptian government has responded to the shortage of water in several ways. Some of these include "taking action with regard to (a) optimal use of available resources, (b) minimizing water losses, (c) irrigation improvement, (d) cost sharing, (e) cropping pattern shifts, (f) optimum use of groundwater, (g) reuse of agricultural drainage water, and (h) reuse of treated wastewater."²⁴³ Furthermore, in order to decrease the amount of prolific water waste that occurs daily, an increase in the national awareness is important. Drive down any street in Cairo or elsewhere in Egypt and you will find people washing their cars, spraying sidewalks to decrease dust, attempting to grow flora that is not native to Egypt which requires constant watering, and pipes that surge water continuously, which saturates surrounding land with the excess flooding roads. These actions alone demonstrate the lack of awareness of the extent of the water crisis that Egypt is experiencing.

In response to the regions water shortage, the countries that rely on water from the Nile River have come together in various projects that seek to optimize water usage. The Nile water sector of the Ministry of Water Resources and Irrigation in Egypt (MWRI) has been working in conjunction with the Nile Basin countries of Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, the Democratic Republic of Congo, and Eritrea as an observer, to create several donor-funded projects that seek to ensure the sustainability of the Nile. The Nile is a significant water resource for many of these countries. The latest project established in 1999 is known as the Nile Basin Initiative (NBI).²⁴⁴ This initiative encourages the ten Nile Basin countries to unite in their development of water

²⁴¹ ATTIA, *supra* note 205, at 45-46.

²⁴² *Id.* at 37.

²⁴³ HEFNY, AMER, *supra* note 202, at 44.

²⁴⁴ *Id.* at 45.

resources that will lead to successful water resource management. The current program objectives are to:

- (1) develop the water resources of the Nile Basin in a sustainable and equitable way in order to ensure prosperity, security and peace for all its peoples, (2) ensure efficient water management and the optimal use of the resources, (3) ensure cooperation and joint action among the riparian countries and seek win-win gains, (4) ensure that the program moves from planning to action.²⁴⁵

The implementation of the NBI could result in an increase of 9 km³ per year for each country.²⁴⁶ This project has been relatively successful because it created a better learning environment here the ten countries could dialogue and work on trust building by engaging in reflective conversation. This has helped to enhance transnational relations between the various countries.²⁴⁷

E. Potential Solutions

After examination of water resource management, it becomes clear that the problems hindering its efficacy are not unique to water. The lack of coordination between ministries hampers current legislation and regulation of policy. Currently, "there is no joint strategy or action plan yet that coordinates the different tasks of the involved ministries."²⁴⁸ By improving coordination, it would ensure that all areas of water resource management are adequately protected and maintained. This would bridge the gap between existing legislation and regulation. Further coordination could also lead to the implementation of new projects and initiatives that can address the long term needs of the country. The current budget for the involved ministries is not sufficient, and would require further governmental investments. Policies need to be amended to encapsulate environmental and sustainable development needs and to create a system of regulation for polluters who do not maintain the predetermined environmental standards. This new policy needs to be broad enough to include specific vulnerabilities for situations of crisis, but also for future water needs as well. Improved legislation can also encourage increased research, and further coordination with other countries to acquire technical assistance to

²⁴⁵ *Id.*

²⁴⁶ HEFNY, AMER, *supra* note 202, at 44.

²⁴⁷ *Id.* at 45.

²⁴⁸ ABDEL-GAWAD, *supra* note 206, at 345.

specific developmental needs. Finally, community awareness needs to be a top priority for designated ministries, to ensure understanding about the value of water and the consequences of pollution.²⁴⁹

²⁴⁹ *Id.* at 346.

V. Conclusion

While Egypt as a developing state does not have primary responsibility for the current state of the global environment, it can play a role in creating sustainable development policies that aid in the longevity of the domestic environment. Egypt's history and its desire for economic, political and social growth has lead to rapid development that was achieved, and continues to be achieved in unsustainable ways. Current mitigation policies in Egypt remain inadequately enforced and under regulated, and an environmental policy that is incorporated at all levels can ensure that the safety of the environment is not undermined in any way. One obstacle to environmental policy in Egypt is the lack of regulatory frameworks to endorse the laws it has set forth, and an inconsistent reliance on peripheral organizations, such as NGOs, to support such policies.

Furthermore, many of Egypt's policies and practiced are heavily influenced by international regimes and funding agencies such as the World Bank, USAID, and the IMF. With this in mind, there is no simple solution. Egypt faces a multifaceted array of difficulties that will not be alleviated as soon as new sustainable development policies are created and the enforcement of those laws are more adequately regulated. This will however, help to ensure the longevity of the state's environment.

Additionally, the consistent oppression of an authoritarian and corrupt regime for several decades has further made obtaining sustainable goals unreachable. In light of the January 25 2011 Revolution, the creation of new environmental policies and their enforcement now seems attainable. Proper water resource management and the devising of new and inventive opportunities for increasing water resources is extremely important for developing countries such as Egypt. As Egypt moves towards democratization, policymakers and environmentalists alike have reason to be hopeful that improved legislation will lead to the sustainability of Egypt and the promotion of water resource management that ensures the protection and existence of future Egyptian generations.