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CLIMATE CHANGE AND CORPORATE REGULATION: A CRITICAL ANALYSIS OF EGYPT'S LEGAL AND REGULATORY REGIME

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ABSTRACT

Corporations operating in African states generally have apathy to climate change/environmental regulation, owing to their weak economic bargaining strength in these states. Egypt is one of the African states suffering the disproportionate impacts of climate change and although it has drawn up several climate policy documents, it has not yet enacted a Climate Change Act and has a weak regulatory capacity to restrain adverse corporate climate change-impacting activities. This article critically analyses the legal/ regulatory regime in Egypt for regulating corporate participation in climate change mitigation and its effectiveness in addressing climate change challenges. It critically analyses the implementation of the *Dilute Interventionism* Model. It evaluates the required legislative framework, regulator, and technical expertise necessary for its successful implementation. This paper also highlights the importance of the *Veto Firewall* protection to maintain the independence of the sole independent regulator responsible for regulating the climate change activities of corporations. This paper argues that the *Dilute Interventionism* Model, in conjunction with the *veto firewall* paradigm, provides a practical and effective approach to regulating corporations. However, successful implementation will require political will, corporate compliance, and technical capacity. This paper provides policymakers, stakeholders, and interested parties in Egypt and elsewhere with useful insights for addressing climate change challenges.

Keywords: Climate Change, Climate Change Act, Corporations, Dilute Interventionism, Egypt, Regulatory Framework, and Veto Firewall Protection

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Climate Change and Corporate Regulation: A Critical Analysis of Egypt's Legal and Regulatory Regime

1. INTRODUCTION

Egypt's economy is largely dependent on the industrial sector, service sector and agricultural sector.[1] Statistics show that in 2021, the service sector contributed 52.23%, Industry contributed 30.79% and agriculture contributed 17.83% of the GDP in Egypt. Tourism, trade, banking and shipping services provide the main source of revenue generated from tourism.[2] According to the Climate Risk Country Profile, only about 2.8% of the land is arable, and the country's agriculture is entirely dependent on the flow of the Nile River and persistent high temperature makes the productivity of agriculture vulnerable to climate change.[3] Another report shows that Egypt hardly receives rainfall that is sufficient for agricultural productivity. According to the report, Egypt receives less than eighty millimetres of precipitation annually in most areas, and Alexandria, the area which receives a significant share of the total rainfall only receives approximately 120-200 millimetres of precipitation per year.[4]

The impact of drought on Egypt mostly affects crops like sugar cane, rice, maize, soybeans, etc. The scarcity of water also leads to an increase in sodium chloride, which leads to the death of land and negatively affects the agricultural sector.[5] A report shows that climate change can decrease the agricultural sector's production of rice by 11% and soybeans by 2050. The report also projects that, by 2050, climate change will increase water demand by 16% for these crops[6] and this will have an impact on the means of livelihood of people and the GDP of the agricultural sector.

Though Egypt hardly sees enough rainfall, when rain does fall, it often causes flooding. Egypt's River Nile providing 90% of Egypt's freshwater is vulnerable to short-line changes often linked with erosion and high sea level rise due to flooding. Rain-induced flooding destroys

1 Statista, 'Egypt - GDP Distribution across Economic Sectors 2011-2021' (Statista) <https://www.statista.com/statistics/377309/egypt-gdp-distribution-across-economic-sectors/#:~:text=In%202021%2C%20agriculture%20contributed%20around> accessed 10 March 2023.

2 Eman Ahmed Hashem, 'The Impacts of Climate Change on Food Security – Case Study: Egypt' (2020) 3 (2) Journal of Economics and Business 868-884. <https://doi.org/10.31014/aior.1992.03.02.244>

3 World Bank, 'Egypt Climate Risk Country Profile' (2021) <https://climateknowledgeportal.worldbank.org/sites/default/files/2021-04/15723-WB_Egypt%20Country%20Profile-WEB-2_0.pdf> accessed 10 March 2023.

4 Tamer A. Nada, 'Drought Condition and Management Strategies in Egypt' (2014) Egyptian Meteorological Authority <https://www.droughtmanagement.info/literature/UNW-DPC_NDMP_Country_Report_Egypt_2014.pdf> accessed 10 March 2023.

5 Samar Simir, 'Drought Fears Grow as Nile Talks Run On' (Egypt Today, 3 October 2020) <https://www.egypttoday.com/Article/15/92628/Drought-Fears-Grow-as-Nile-Talks-Run-On> accessed 10 March 2023.

6 Helmy Eid, Samia El-Marsafawy and Samiha Ouda, 'Assessing the Economic Impacts of Climate Change on Agriculture in Egypt: A Ricardian Approach' (2007) Policy Research Working Paper No. 4293. The World Bank Group. <https://documents1.worldbank.org/curated/en/690661468234308557/pdf/wps4293.pdf> accessed 10 March 2023.

property, claims lives and displaces several others.[7] These floods often come in a form of flash floods causing havoc. In 2010, a flash flood in the northern part of Sinai Peninsula destroyed over 780 homes, and 1,100 humans were submerged. The flood also destroyed approximately 59 km of road and killed approximately 1,900 animals. Sinai saw a huge loss of US$ 25.3 million, costing the Egypt government approximately $ 3.5 million in compensation payments.[8] A report states that the rising of the Mediterranean Sea by only 50 centimetres flooded approximately 30% of Alexandria. According to the report, 1.5 million people will be displaced, with approximately 19,500 jobs destroyed.[9]

Despite these devastating impacts of climate change on the health, livelihood of people, and the economy of the country, Egypt is yet to implement an effective legal and regulatory framework for regulating climate change activities of corporations in the country. It is yet to enact a Climate Change Act that will consider the domestic peculiarities of the climate change problem and provide the legal backbone/foundation for the regulation of climate change activities of corporations in the country.

To effectively argue for the implementation of an effective legal framework which will incorporate the innovative paradigms - *Dilute Interventionism* and *Veto Firewall* - as proposed in this article, this article will first examine Egypt's carbon emission trajectory highlighting its consistent annual increase and the various sectors responsible for this. Secondly, it will examine its current climate/environmental legal framework (internationally and nationally); climate change regulation of corporations and discuss the strengths/weaknesses of the current climate change legal regime in Egypt. Finally, the article will critically examine the implementation of the two innovative paradigms proposed and present its conclusion/recommendations.

2. EGYPT'S CARBON EMISSION TRAJECTORY AND SECTORAL CONTRIBUTIONS

Egypt is a minor contributor to the global greenhouse gases (GHGs) contributing less than 0.6% of global greenhouse gas emissions.[10] Though Egypt contributes a fraction of global emissions, Egypt still suffers from climate change-induced issues. A report shows that Egypt has seen a consistent increase in GHGs with an average of 2.5% from 2016 to 2019. In

[7] World Bank, 'World Bank Climate Change Knowledge Portal: Country Egypt' (2021) <https://climateknowledgeportal.worldbank.org/country/egypt/vulnerability> accessed 10 March 2023.

[8] Reliefweb, 'EGYPT: Report Details North Sinai Flood Damage – Egypt' (2010) ReliefWeb <https://reliefweb.int/report/egypt/egypt-report-details-north-sinai-flood-damage> accessed 10 March 2023.

[9] AfricaNews, 'Egypt: Alexandria Expected to Sink by 2100' (2022) <https://www.africanews.com/2022/11/03/egypt-alexandria-expected-to-sink-by-2100//> accessed 10 March 2023.

[10] The Arab Republic of Egypt, 'The Arab Republic of Egypt Sovereign Sustainable Financing Framework' (2022) <https://www.afdb.org/sites/default/files/egypt_sovereign_sustainable_financing_framework.pdf > accessed 10 March 2023.

2016, the total greenhouse house gas was 325,470,000 tons and in 2019 the emissions increased to 351.769.99 tons.[11]

A USAID report tracks Egypt's green gas emissions as far back as 1990. The report shows a staggering increase in greenhouse gas emissions. According to the report, Egypt's greenhouse emissions grew by 140% between 1990 and 2016 with an annual increase rate of 3.5%. The report states that the total emission growth in Egypt over that span was three times faster than the world's arrangement. This number, however, saw a decline between 2016 and 2019.[12] The emission of CO_2 in Egypt also poses similar numbers. In 2021, CO_2 amounted to 259.3 million tons. There was substantial growth from 27.2 million tons to 259.3 million tons at an increased annual rate that peaked at 15.83% in 1979 and saw a decrease in 2021 to 6.59%.[13]

Egypt's biggest contributor to greenhouse gas emissions is the energy sector. The energy sector contributed a staggering 71.4% of Egypt's total emissions in 2016. Electricity and heat were the major contributors to these figures.[14] Electricity and heat contributed over 45% of its total number. The transportation sector contributed over 25%. The report shows that emissions from the energy sector grew by an average of 3.5% from 1990 to 2016.[15] Agriculture contributes the second most to greenhouse gas emissions in Egypt. The agricultural sector contributed a total of 10.2% in 2016. Agriculture's emissions only saw a minor increase of 2% from 1990 to 2016.[16] This growth was also relative to the growth of the sector in terms of GDP. Agricultural sector contribution has remained static since then, though it saw a slight decrease to 11.05% in 2016.[17]

The manufacturing sector is the third largest contributor to greenhouse gas emissions constituting approximately 9.7% of Egypt's total. In terms of growth, manufacturing was the second fastest growing source of greenhouse gas emissions between 1990 and 2016, with a growth rate of 3.8% during that period.[18] Waste handling and management is the fourth largest contributor to greenhouse gases constituting 8.6% of Egypt's total greenhouse gas emissions. Between 1990 and 2016, waste management grew by approximately 5.6%.[19] This growth in CO_2 was

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11 Macrotrends, 'Egypt Greenhouse Gas (GHG) Emissions 1990-2023' (2023) <https://www.macrotrends.net/countries/EGY/egypt/ghg-greenhouse-gas-emissions> accessed 10 March 2023.

12 USAID, 'Greenhouse Gas (GHG) Emissions by Sector Change in GHG Emissions in Egypt' (1990) <https://www.climatelinks.org/sites/default/files/asset/document/GHG%20Emissions%20Factsheet%20Egypt_v6_11_02-15_edits%20%281%29%20Steed%20June%202016_rev08-19-2016_Clean.pdf> accessed 10 March 2023.

13 Knoema, 'Egypt CO_2 Emissions, 1970-2022' (2021) (Knoema) <https://knoema.com/atlas/Egypt/CO2-emissions#:~:text=In%202021%2C%20CO2%20emissions%20for> accessed 10 March 2023.

14 Enterprise Press, 'A Look at Egypt's Most Polluting Sectors' (2020) (Enterprise) <https://enterprise.press/hardhats/look-egypts-polluting-sectors/> accessed 10 March 2023.

15 *Ibid.*

16 *Ibid.*

17 *Ibid.*

18 *Ibid.*

19 *Ibid.*

driven majorly by the corporate sector. Corporate activities have immensely contributed to the environmental challenges in Egypt with many of the country's largest businesses mostly reliant on fossil fuels.

3. ENVIRONMENTAL REGULATIONS IN EGYPT

Egypt's Constitution has been making progress in ensuring the protection of the environment. The Constitution's first recognition of the environment came from the amendment to the Constitution in 1971.[20] It included Article 59, which goes on to provide that protecting the environment is a national duty and requires measures taken should be regulated by law. The 2012 amendment in Constitution goes beyond this and includes the right to health and an undamaged environment. It further requires states to safeguard the nation from all forms of pollution.[21] The 2014 addition to the Constitution in the form of Article 46 fully recognises the right of the citizens of Egypt to a healthy environment and requires the states to safeguard the environment against all forms of pollution, and promotes the use of natural resources in a manner that prevents any damage to the environment.[22] Though the Egypt's Constitution provides for environmental rights for its citizens, it fails to make any provision on how citizens can implement and enforce the right to a healthy environment.

One of the first pieces of a policy document on the Environment in Egypt was the Environmental Law (Law 4 of 1994) Amended by Law No. 9 in 2009. The provisions in Article 2 establish the Environmental Affairs Agency and charge it with the duty to enforce the law for the environment, preventing pollution and controlling and adapting International Environmental Agreements.[23] The Agency is also charged in Article 5 with formulating the general policies and laying down necessary plans which are necessary for protecting and promoting the environment and ensuring proper follow-up of such plans. Article 14 establishes a fund known as Environmental Protection Fund. The funds, according to the law, will be utilized by the Environmental Affairs Agency (EEAA) in fulfilment of its objectives. Though the funds are to be utilized by the EEAA, in order to ensure proper checks and balances, the law provides that all activities and transactions for which the funds are to be utilized will be subject to the Central Audit Agency.[24]

The law provides for synergy between the Environmental Affairs Agency and the Environmental Gas Holding Corporation (EGA), as it

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[20] Tadamun, 'The Right to a Sustainable Environment in the Egyptian Constitution - Tadamun' (2014) <http://www.tadamun.co/right-to-a-sustainable-environment-in-the-egyptian-constitution/?lang=en#.ZAoykVNKgfM> accessed 10 March 2023

[21] Ibid.

[22] Constitution of Egypt 2014 with Amendments through 2019.

[23] Egypt, 'Law Number 4 Of 1994* Promulgating the Environment Law and Its Executive Regulation Egypt * in Case of Difference of Interpretation, the Arabic Text Will Prevail' <https://faolex.fao.org/docs/pdf/egy4984E.pdf> accessed 10 March 2023.

[24] *Ibid.*

relates to conducting Environmental Impact Assessments of projects.[25] The EEAA is responsible upon agreement of the EGAS, for issuing elements, designs and specifications which will form the basis of assessment of the Environmental Impacts of the project for which the license is sought. The Board of Directors of the EEAA provided for in Article 6 develops the criteria for consultants to be assigned to the EEAA to review the Environment Impact Assessment.[26] Upon the review and evaluation of the documents, the EEAA proceeds to then transmit the document to the EGAS for its opinion and possible proposals to be taken as regards the protection of the environment.[27]

The Executive Regulations for Environment Law (Laws No. 4 of 1994) provides for key objectives, and some of these objectives include: Specifying the assignment of the Appeal Committee and the procedure for operation as well as the mechanism for laying complaint, defining the necessary specification which should be complied with by industrial establishment. The regulation also seeks to specify limits on air pollutants in emissions.[28]

Other laws are also applicable, as they provide key provisions for the Environment. The Investment Law No.72/2017 under Article 11 provides for special incentives one of these is providing a percentage deduction on net profits, set up at approximately 30% of the investment costs for projects that majorly depend on the production of new and renewable energy.[29] Article 20 goes on to provide that renewable energy, which is labelled as strategic, may be granted one approval for its establishment, operation, management, etc.[30] Law n.87/2015-Electricity Law, for instance, restructures the Electricity Unity and Consumer Protection Regulatory Agency and now gives the Agency the function of regulating the development and encouragement of renewable energy production and use; it also empowers the Agency to issue renewable source certificates that could be traded subject to the issuance of regulations detailing the processes.[31]

4. CLIMATE CHANGE REGULATORY FRAMEWORK IN EGYPT

The Egyptian government has recognised the impact of climate change in the country, and in order to reduce its effect, has ratified several international conventions. Key amongst them is the United Nation Framework Convention on Climate Change (UNFCCC), which was signed

[25] *Ibid.*
[26] *Ibid.*
[27] *Ibid.*
[28] *Ibid.*
[29] Vizzuality, 'Investment Law No. 72/2017 - Egypt - Climate Change Laws of the World' (2017) <https://climate-laws.org/geographies/egypt/laws/investment-law-no-72-2017> accessed 10 March 2023.
[30] *Ibid*
[31] Vizzuality, 'Law N. 87/ 2015 - Electricity Law - Egypt - Climate Change Laws of the World' (2015) <https://climate-laws.org/geographies/egypt/laws/law-n-87-2015-electricity-law> accessed 10 March 2023.

on June 12, 1992, and ratified on the 5th December 1994.[32] Egypt signed the Paris Agreement on the 22nd of April 2016 and ratified same on the 29th of June 2017.[33] Egypt has also signed the Kyoto protocol in 2005.[34]

The UNFCCC, for instance, spells out its key principles some of these include: the requirement for state parties to take precautionary measures to anticipate, prevent and minimize the effect of climate change and mitigate its adverse effects, and the right of state parties to promote sustainable development.[35] Egypt has since attempted to meet some of the objectives of the Convention. Egypt, in compliance with Articles 4.1 and 12.1 of the Convention, which requires a member state to periodically report to the Convention regarding its national circumstance and subsequent response to climate change, through a National Communication prepared and submitted its first, second and third National Communications to the UNFCCC in 1999, 2010 and 2016, respectively.[36] Egypt intends to submit its 4th National Communication by the end of 2024.[37]

Egypt, in compliance with Article 7.10 of the Paris Agreement, which requires all signatory States to submit and update periodically an adaptation communication, which can spell out its priorities, implementation and support needs, plans and actions, has developed its Adaptation Communication to the United Nation to the United Nations Framework Convention on Climate Change[38]. Egypt has also made persistent efforts to comply with other agreements.[39] For instance, Egypt in compliance with Article 4.2 of the Paris Convention, which specifically requires States to prepare and communicate Nationally Determined Contributions, drafted its first Nationally Determined Contribution first in 2015[40] and, subsequently revised its 2015 edition by drafting an Updated Nationally Determined Contribution in November 2022.[41] The updated version aims to decarbonize the industrial sector through the use of

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32 United Nations, 'United Nations Treaty Collection' (2023) <https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=_en> accessed 10 March 2023.

33 United Nations, 'UNTC' (2009) <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-7-d&chapter=27&clang=_en> accessed 10 March 2023.

34 UNFCC, 'Egypt's Submission of Additional Information on Progressin Implementing Decision1/CP.21, Section IV: Enhanced Action Prior to 2020', <https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201805051558---Arab%20Republic%20of%20Egypt%20submission%20on%20Pre-2020.pdf> accessed 10 March 2023.

35 UNFCCC, 'United Nations Framework Convention on Climate Change' (1992) <https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf> accessed 25 February 2023.

36 *Ibid.*

37 UNFCC, 'Egypt's First Updated Nationally Determined Contributions' (2022) <https://unfccc.int/sites/default/files/NDC/2022-07/Egypt%20Updated%20NDC.pdf.pdf> accessed 10 March 2023.

38 Ibid.

39 *Ibid.*

40. *Ibid*

41 *Ibid.*

renewable and alternative fuels and low carbon process improvement, etc.[42]

Currently, there is neither Climate Change Act in Egypt nor any comprehensive legislation that effectively regulates the climate change activities in Egypt. However, Egypt has drawn up several policy documents that provide for climate change. For instance, the National Renewable Energy Strategy aimed at generating approximately 20% of electricity from renewable sources by 2020. 12% of this total energy was aimed to be generated from wind farms.[43] There is no data to show that Egypt has sustained 20% of its electricity from renewable sources in 2020 and even after 2020.

The main goal of the Egypt National Strategy for Disaster Risk Reduction, which was enacted in 2017, is to expand Egypt's flexibility in curbing climate change risks and disasters as well as enabling the Egyptian community's ability to contain, and reduce risks and disasters across all sectors in Egypt.[44] The overall goal of the Strategy was to preserve lives and property by creating a nationwide system for reducing the risk associated with disaster in a way that enhances the country's capacity and contributes to Egypt achieving sustainable development.[45] It also provides for key actions directed towards understanding disaster risks, early warning, investment, finance, development and disaster risk reduction.

Egypt's National Climate Change Strategy was developed to fuse all aspects of climate change into one piece of document. This document is aimed at being a reference that ensures the integration of the climate change dimension into the general planning of the different sectors in the country. The strategy provides five goals and goes on to set directions for achieving each objective.[46] Under the Goal 1,: the Climate Change Strategy aims to achieve sustainable economic growth and low-emission development in various sectors. Goal 2 aims at enhancing adaptive capacity and building resilience to climate change and reducing the negative impact of climate change.[47] Goal 3 enhances the climate change action governance goal. Goal 4 aims at enhancing climate financing infrastructure, and Goal 5, lastly, aims at enhancing scientific research, technology transfer, management of knowledge and increasing awareness to combat climate change.[48]

Though Egypt does not have a Climate Change Act, Egypt has different bodies, established under decrees that are directly charged with

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42 *Ibid.*

43 Vizzuality, 'New National Renewable Energy Strategy - Egypt - Climate Change Laws of the World' (2008) <https://climate-laws.org/geographies/egypt/policies/new-national-renewable-energy-strategy> accessed 10 March 2023.

44 Vizzuality, 'Egypt's National Strategy for Disaster Risk Reduction - Egypt - Climate Change Laws of the World' (2011) <https://climate-laws.org/geographies/egypt/policies/egypt-s-national-strategy-for-disaster-risk-reduction> accessed 10 March 2023.

45 Ibid.

46 Vizzuality, 'Egypt National Climate Change Strategy (NCCS) 2050 - Egypt - Climate Change Laws of the World' (2022) <https://climate-laws.org/geographies/egypt/policies/egypt-national-climate-change-strategy-nccs-2050> accessed 10 March 2023.

47 *Ibid.*

48 *Ibid.*

regulating climate change. For instance, in 2007, the National Committee on Climate Change was established by the Prime Minister's Decree no. 272. The primary duty of the Committee was to review and activate a National Strategy for Climate Change with the preparation of plans and programs in both long and short terms, to be integrated into national action plans for development in Egypt.[49]

The National Council of Climate Change was also formed by the Prime Minister's Decree no. 1912 in 2015, and was fully implemented in May 2019. The Prime Minister's Council consisted of 9 Ministries.[50] The council also consisted of 3 departments namely the Supreme Committee, the Executive Office and the Technical Working Group. The Council is required to meet at least once annually or during emergency cases. The Decree also provides for some of the functions of the Committee.[51] These include creating the state's policy regarding climate change having regard to international agreements and treaties, following agreements of the UNFCC with its supplementary protocols and agreement, drastically increasing scientific research, and ensuring publications on climate change. The publication on climate change should also include international publications.[52]

5. CORPORATE REGULATIONS ON CLIMATE CHANGE

Egypt from all indications appears not to have any corporate regulations on climate change. It recognises the likely risk climate change poses and the role a corporation plays in aggravating them. Egypt, at best in some of its laws, makes minor provisions relating to regulating companies.[53] Although this provision relates to general environmental regulations, some of the laws already discussed in preceding sections contain several provisions regulating corporate contribution to climate change in Egypt.[54] For instance, the Egyptian Natural Gas Holding Company (EGAS) was established through the Prime Ministerial Order No. 1009 of 2001. The EGAS is mainly responsible for promoting and developing gas activities in Egypt. The EGAS is also responsible for issuing licensing to gas pipeline construction and operation before issuing licenses.[55] The EGAS in collaboration with the EEAA is responsible for conducting Environmental Impact Assessments for corporate bodies undertaken to carry out projects likely to have an impact on the

[49] Hamsa Hefny and others, 'Climate Governance in Egypt' (2019) The Public Policy HUB, The School of Global Affairs and Public Policy, The American University in Cairo, Egypt. <https://documents.aucegypt.edu/Docs/GAPP/Public%20Policy%20Hub%20Webpage/17-%20Climate%20Governance%20in%20Egypt%20-%20En.pdf> accessed 10 March 2023.
[50] *Ibid*.
[51] *Ibid*.
[52] *Ibid*.
[53] PETROSAFE, 'GASCO Abr Sinai Onshore Gas Pipeline' (2007) <https://www.eib.org/attachments/pipeline/20070088_eia3_en.pdf> accessed 10 March 2023.
[54] *Ibid*.
[55] *Ibid*.

environment.[56] The Environmental (Law No. 4 of 1994) Amended by Law No. 9 for 2009 and its regulations also provide for synergy between these bodies requiring Environmental Impact Assessments on projects likely to have an impact on the environment.[57] The Executive Regulations of Law No. 4 of 1994 specifically provide that establishment must be subjected to an Environmental Impact Assessment having regard to the type of activity performed by it, the extent of its natural recourses exploitation, the type of energy used in operating the establishment etc.[58]

6. STRONGHOLDS OF THE EGYPT CLIMATE CHANGE LEGISLATION

As stated in preceding para, Egypt does not have comprehensive Climate Change Legislation. However, they have some strategies directed at regulating climate change activities. For example, the strongholds of the Egypt New National Renewable Energy Strategy 2008 include setting ambitious targets for renewable energy development, promoting private sector participation, enhancing research and development, and increasing access to financing for renewable energy projects.[59] Also, one of the key objectives of the Egypt's National Climate Change Strategy (NCCS) 2050 is to reduce the country's greenhouse gas emissions by 50% by 2030, and to achieve net-zero emissions by 2050.[60] Other key strongholds of this strategy include:

6.1 Energy Efficiency

The strategy aims to improve the energy efficiency of buildings, appliances, and transportation systems. This will involve the adoption of energy-efficient building codes, the promotion of energy-efficient appliances, and the development of public transportation systems that use clean energy.

6.2 Renewable Energy

The strategy aims to increase the share of renewable energy in the country's total energy mix to 42% by 2035, as outlined in the Egypt New National Renewable Energy Strategy 2008.

6.3 Sustainable Agriculture

The strategy aims to promote sustainable agriculture practices, such as the use of organic farming techniques, the conservation of water resources, and the promotion of agroforestry.

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56 *Ibid.*
57 *Ibid.*
58 *Ibid.*
59 Vizzuality, *Supra* 43
60 Vizzuality, *Supra 46*

6.4 Adaptation

The strategy aims to enhance the country's resilience to the impacts of climate change, such as droughts, floods, and sea-level rise. This will involve the development of early warning systems, the construction of sea walls and other coastal protection measures, and the implementation of measures to protect biodiversity and ecosystems.

7. SHORTCOMINGS OF THE EGYPT CLIMATE CHANGE LEGISLATION

There are several shortcomings in the New National Renewable Energy Strategy (NNRES) 2008 and the Egypt's National Climate Change Strategy (NCCS) 2050. Some of these include, but are not limited to:

7.1 Lack of Specific Climate Change Targets

The NNRES lacks specific targets for renewable energy generation and the reduction of greenhouse gas emissions. Although it sets a general goal of increasing renewable energy use to 20% by 2020, it does not provide specific actions or targets to achieve this goal. This lack of specificity makes it difficult to assess progress and identify areas that need improvement.

7.2 Limited Focus on Adaptation

The NCCS 2050 acknowledges the importance of adaptation to the impacts of climate change, but it does not provide specific actions or targets for adaptation measures. For example, the strategy does not include specific actions to address the impacts of rising sea levels on coastal communities or to improve water management in areas prone to droughts. These actions are critical for ensuring that vulnerable communities are adequately prepared for climate impacts. While mitigation is an essential component of any climate strategy, adaptation to the impacts of climate change is also critical, particularly for a country like Egypt that is vulnerable to extreme weather events such as droughts, floods, and rising sea levels. The strategy may need to pay more attention to adaptation measures to ensure that vulnerable communities are adequately prepared for climate impacts.

7.3 Limited Participation

The development of the strategy involved limited participation from key stakeholders, such as civil society organizations, private sector actors, and vulnerable communities. This limited participation may result in a strategy that does not reflect the diverse needs and interests of all groups. For example, the strategy does not include specific actions to address the needs of marginalized communities that are particularly vulnerable to the impacts of climate change. To be effective, climate strategies need to engage a broad range of stakeholders to ensure that they reflect the diverse needs and interests of all groups.

7.4 Inadequate Financial Allocations for Climate Change Mitigation

The NCCS 2050 does not allocate sufficient financial resources to implement the proposed actions. For example, the strategy includes a target of generating 20% of Egypt's electricity from renewable sources by 2022, but it does not provide details on the financing mechanisms that will be used to achieve this target. Without adequate funding, it may be difficult to achieve the desired outcomes and ensure the sustainability of the strategy.

7.5 Lack of Integration

The strategy is not fully integrated with other national policies and strategies, such as energy, water, and agriculture policies. This lack of integration may result in unintended consequences or missed opportunities for synergies. For example, the strategy does not include specific actions to improve the efficiency of water use in agriculture, which is a critical sector for both climate change mitigation and adaptation. To be effective, climate strategies need to be integrated with other policies to ensure that they are aligned with national development priorities and do not create unintended consequences.

8. ALTERNATIVE CLIMATE CHANGE REGULATORY FRAMEWORKS IN EGYPT

There are several alternative regulatory frameworks embedded in Egypt's climate change regulatory framework. These include but are not limited to judicial regulation, fiscal regulation and other regulatory mechanisms.

8.1 Judicial Regulation

Judicial regulation is becoming more widely recognized as a way to address climate change and hold responsible parties accountable for their actions.[61] By using the court system to enforce environmental laws and regulations, individuals and institutions can be held accountable for their contributions to climate change and for failing to take action to mitigate its effects.[62] One of the benefits of judicial regulation is that it can help to raise public awareness about the issue of climate change and the need for action. Court cases can attract media attention and generate public interest, which can help to build support for environmental policies and initiatives.[63] Additionally, court decisions can establish legal precedents and set the

[61] Catherine Higham and others, 'Accountability Mechanisms in Climate Change Framework Laws' (2021) <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2021/11/Accountability-mechanisms-in-climate-change-framework-laws.pdf> accessed 9 March 2023.

[62] Anthony Heyes, 'Making Things Stick: Enforcement and Compliance' (1998) 14 Oxford Review of Economic Policy 50.

[63] United Nations, 'Five Ways Media and Journalists Can Support Climate Action While Tackling Misinformation' (UN News, 3 October 2022) <https://news.un.org/en/story/2022/10/1129162> accessed 9 March 2023.

stage for future actions, which can be an effective way to drive change at the institutional level.

However, there are also challenges associated with using judicial regulation as a mechanism for addressing climate change. For example, legal processes can be slow and expensive,[64] which can limit the effectiveness of judicial regulation as a tool for change. Additionally, there may be resistance from powerful actors who have a vested interest in maintaining the status quo, which can make it difficult to secure legal victories. Despite these challenges, judicial regulation has the potential to be an important tool for holding individuals, corporations, and governments accountable for their contributions to climate change.[65] By using the court system to enforce environmental laws and regulations, it may be possible to drive change at the institutional level and build public support for policies and initiatives aimed at mitigating the effects of climate change.[66]

The Constitution of Egypt[67] provides a basis for environmental protection and sustainable development in Egypt. It also provides a legal framework for citizens and activists to use judicial regulation to hold the government accountable for its actions related to climate change and the environment. Article 45 of the 2014 Egyptian Constitution[68] states that, "Everyone has the right to a healthy and clean environment, and the state is committed to taking the necessary measures to achieve this". The Constitution also recognizes the importance of sustainable development, stating in Article 46[69] that, "The state shall adopt a comprehensive strategy for sustainable development that balances the needs of present and future generations and achieves economic, social, and environmental objectives". Furthermore, Article 141 of the Constitution[70] grants citizens the right to access justice, which means that citizens and activists can use judicial regulation to hold the government accountable for its actions related to climate change and the environment. This constitutional provision allows citizens to file lawsuits against the government or private entities for violating environmental laws and regulations.

In addition, Egyptian Law No. 4 of 1994[71] on the Environment provides for the right to a healthy environment. This law aims to protect and enhance the environment, prevent pollution, and promote sustainable

64 PricewaterhouseCoopers, 'Litigation Can Be Inefficient and Expensive. Why Litigate?' (PwC) <https://www.pwc.com/gx/en/services/forensics/dispute-services/litigation.html> accessed 9 March 2023.

65 Chuan-Feng Wu, 'Challenges to Protecting the Right to Health under the Climate Change Regime' (2021) 23 Health and human rights 121 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8694293/> accessed 30 May 2022.

66 UNEP, 'Enforcement of Environmental Law: Good Practices from Africa, Central Asia, ASEAN Countries and China Acknowledgements' (2014) <https://wedocs.unep.org/bitstream/handle/20.500.11822/9968/enforcement-environmental-laws.pdf?sequence=1&isAllowed=y> accessed 9 March 2023.

67 Constitution of Egypt, *supra 22*.

68 Article 45 of the Constitution.

69 Article 46 of the Constitution.

70 Article 141 of the Constitution.

71 Egyptian Law, *supra 23*

development. Under this law, every person has the right to live in a clean and healthy environment, and it is the responsibility of the state to ensure the protection and conservation of natural resources. The law also establishes the Egyptian Environmental Affairs Agency (EEAA) as the main regulatory body responsible for enforcing environmental laws and regulations in Egypt.[72] In addition, Law No. 102 of 1983 on the Protection of the Nile River and Water Channels[73] also provides for the protection of the environment, as the Nile River is a crucial natural resource for Egypt. This law prohibits any activity that may cause pollution or harm to the Nile River and its water channels.

In *Red Sea Islands Case* (2016),[74] a group of citizens challenged the Egyptian government's decision to transfer the sovereignty of two islands in the Red Sea to Saudi Arabia, arguing that it would harm the environment and violate their right to a healthy environment. The case was initially ruled in favour of the government, but an appeals court later overturned the decision and ruled that the transfer of sovereignty was unconstitutional. Also, in *Manshiyat Nasser Case* (2015),[75] residents of Manshiyat Nasser, a neighbourhood in Cairo, sued the government for failing to collect and dispose of garbage properly, which led to environmental pollution and health problems. The court ruled in favour of the residents and ordered the government to improve waste management in the area. Furthermore, in 2018, an Egyptian court issued a ruling in favour of a group of Nubian activists who had filed a lawsuit challenging the government's decision to sell land in the Nubian region to private investors. The activists argued that the sale would harm the environment and violate their rights to ancestral land. The court ruled that the sale was unconstitutional and ordered the government to halt the sale of land in the area.[76]

8.2 Fiscal Regulation

Although Egypt has not yet implemented a comprehensive carbon tax or emissions trading scheme, it has introduced a corporate tax incentive to promote the adoption of market techniques for low-carbon development. In 2015, Egypt's Ministry of Finance introduced a tax incentive for corporations that invest in renewable energy and energy efficiency projects.[77] Under this incentive, corporations can claim a tax

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72 Article 6 of the Egyptian Law.

73 Law No. 102 of 1983 on the Protection of the Nile River and Water Channels.

74 *Red Sea Islands Case*, (The State Council's Case No. 25 of Judicial Year 68). See also, Aljazeera, 'Egypt Court Upholds Deal to Transfer Red Sea Islands' (2016) <https://www.aljazeera.com/news/2016/12/31/court-upholds-deal-to-transfer-red-sea-islands> accessed 9 March 2023.

75 *Manshiyat Nasser Case* (Court of Administrative Justice, First Circuit, Case No. 9654/68JY), the judgment of June 4, 2015.

76 Frontline Defenders, 'Egypt: Indigenous Rights Defenders in State Security Court' (Front Line Defenders, 18 January 2018) <https://www.frontlinedefenders.org/en/egypt-indigenous-rights-defenders-state-security-court> accessed 9 March 2023.

77 International Energy Agency, 'Egypt Renewable Energy Tax Incentives (Presidential Decree No 17/2015) – Policies' (IEA) <https://www.iea.org/policies/6105-egypt-renewable-energy-tax-incentives-presidential-decree-no-172015> accessed 9 March 2023.

deduction of up to 30% of the total investment cost of the project. The incentive is designed to encourage the private sector to invest in low-carbon development and reduce greenhouse gas emissions.[78]

In addition, Egypt has implemented several policies and initiatives to promote renewable energy and energy efficiency, including the development of a National Renewable Energy Strategy[79] and the implementation of several renewable energy projects, such as wind farms and solar power plants. Furthermore, in 2014, Egypt introduced a Feed-in Tariff (FiT) program to promote the deployment of renewable energy projects.[80] The FiT program provides fixed tariffs for renewable energy projects, which are guaranteed for a certain period, typically 20 years. The tariffs are designed to provide a predictable return on investment for renewable energy projects and incentivize private investment in the sector.[81]

Subsequently, in 2016, Egypt introduced a net metering policy to encourage the deployment of rooftop solar systems.[82] Net metering allows consumers who generate their electricity from solar panels to sell excess electricity back to the grid, which provides an incentive for consumers to install rooftop solar systems and reduces their electricity bills.[83] In 2017, Egypt established an Energy Efficiency Fund to finance energy efficiency projects in the industrial, commercial and residential sectors.[84] The fund provides loans and grants for energy efficiency projects, which are designed to reduce energy consumption and greenhouse gas emissions. In 2019, Egypt issued its first green bond, which was used to finance renewable energy and energy efficiency projects.[85] Green bonds provide investors with a way to invest in projects that have positive environmental and social impacts and can help mobilize private capital for climate action.[86] While Egypt's efforts to promote low-carbon development are still in the early stages, these policies and initiatives demonstrate the country's commitment to addressing climate change and transitioning to a low-carbon economy.

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78 Ibid.

79 Vizzuality, *Supra* 43. See also, Sustainable Development Strategy: Egypt Vision 2030.

80 ERBD, 'Egypt Renewable Feed-In-Tariff Framework' (2017) <https://www.ebrd.com/work-with-us/projects/psd/egypt-renewable-feedintariff-framework.html> accessed 9 March 2023

81 Salma I. Salah, Mahmoud Eltaweel and Abeykoon, C., 'Towards a Sustainable Energy Future for Egypt: A Systematic Review of Renewable Energy Sources, Technologies, Challenges, and Recommendations' (2022) 8 Cleaner Engineering and Technology 100497.

82 Dalia Abdelhamid Mahmoud Sakr and others, 'Scaling up Distributed Solar in Emerging Markets: The Case of the Arab Republic of Egypt' World Bank Policy Research Working Paper No. 8103, The World Bank Group. <https://ssrn.com/abstract=3006127> accessed 9 March 2023.

83 SEIA, 'Net Metering | SEIA' (2017) <https://www.seia.org/initiatives/net-metering> accessed 9 March 2023.

84 Sustainable Energy Egypt, 'Second: National Energy Efficiency Action Plan (NEEAP)' (2019) <https://sustainableenergyegypt.com/wp-content/uploads/2020/07/The-National-Energy-Efficency-Action-Plan-II.pdf> accessed 9 March 2023.

85 World Bank, 'EGYPT the First Sovereign Green Bond in the Middle East and North Africa' (2022) <https://thedocs.worldbank.org/en/doc/931e017a795e984d79cfcaccadac563f-0340012022/original/16341-WB-Egypt-Case-Study-WEB.pdf> accessed 9 March 2023.

86 OECD, 'Green Bonds Mobilising the Debt Capital Markets for a Low-Carbon Transition' (2015) <https://www.oecd.org/environment/cc/Green%20bonds%20PP%20%5Bf3%5D%20%5Blr%5D.pdf> accessed 9 March 2023.

8.3 Other Regulatory Mechanisms

The government has implemented other policies and programs that encourage actions that align with climate change regulations in the country. An example of such policies is the energy subsidy reform program, which was launched by the Egyptian government in 2014.[87] The program aims to reduce energy subsidies and increase energy prices to reflect the true cost of energy production and consumption.[88] This has led to increased energy efficiency and the adoption of renewable energy sources in the country.[89] Another example is the National Strategy for Sustainable Development 2030,[90] which was launched in 2016. The strategy aims to promote sustainable development in Egypt by addressing environmental challenges, including climate change.[91] It includes several initiatives to reduce greenhouse gas emissions, such as promoting renewable energy, improving energy efficiency, and increasing the use of public transportation.[92]

In addition, Egypt has implemented penalties for actions that harm the environment. For example, the government has imposed fines on factories that violate environmental regulations, such as exceeding emissions limits or discharging untreated wastewater into waterways. In Law No. 4 of 1994 on the Environment,[93] the law outlines the duties and responsibilities of the government, individuals, and entities in protecting the environment. The law also provides for penalties for activities that cause pollution or harm to the environment, including fines and imprisonment.[94]

The Environmental Law Enforcement Decree (Presidential Decree) No. 26 of 2016[95] also imposes fines and penalties for activities that harm the environment, such as the disposal of waste in public areas, the discharge of untreated wastewater into waterways, and the operation of factories without environmental permits. Law No. 102 of 1983 on the Protection of the Nile River and Waterways also provides penalties for activities that cause pollution or harm to the river, including fines and imprisonment.[96] Lastly, Law No. 48 of 1982 on the Conservation of Nature which regulates the use and management of natural resources, including protected areas, forests, and wildlife provides for penalties for activities that harm protected areas or wildlife, including fines and imprisonment.[97]

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87 Energy Subsidy Reform Program, 2014. See also, Clemens Breisinger and others, 'Energy Subsidy Reform for Growth and Equity in Egypt: The Approach Matters' (2019) 129 Energy Policy 661.
88 *Ibid.*
89 *Ibid.*
90 Vizzuality, *Supra 79.*
91 Ibid.
92 Ibid.
93 Law No.4 of 1994 on the Environment, *supra 23.*
94 Law No. 4 of 1994 on the Environment, Section 18 of the Law No.4 on the Environment.
95 The Environmental Law Enforcement Decree (Presidential Decree) No. 26 of 2016, Articles 56 and 57.
96 Section 14 of the Law No. 102 of 1983 on the Protection of the Nile River and Waterways.
97 Section 18 of the Law No. 48 of 1982 on the Conservation of Nature.

9. IMPLEMENTING THE *DILUTE INTERVENTIONISM* MODEL IN EGYPT

Dilute Interventionism is a regulatory framework that aims to enforce climate change regulations in a balanced and flexible way. Compared to other regulatory theories, the *Dilute Interventionism* regulatory theory emphasizes the use of prescriptive measures to incentivize compliance instead of punishing non-compliance.[98] The theory employs a pyramid enforcement structure to outline the progression of interventionist measures at each level, but with an inverse structure that begins with the most severe prescriptive measures at the base and progresses towards more flexible and facilitative measures at the top.[99] This approach is intended to prevent corporate excesses while encouraging corporate participation in the regulatory framework. The base of the pyramid consists of the strictest single prescriptive measure, such as loss of license, while higher levels offer a range of increasingly less severe prescriptive sanctions like criminal, civil, and administrative sanctions.[100] As the pyramid structure widens towards the top, the available interventionist options become less prescriptive, with a greater emphasis on facilitative and self-regulatory instruments available to the corporations.[101] This allows for flexibility and allows corporations to devise their own methods to mitigate the effects of climate change while remaining within the regulatory framework. After which, the theory posit that the Government prioritizes providing economic and fiscal incentives such as tax incentives, rebates, or government grants and subsidies for sustainable projects to encourage comprehensive implementation of climate change mitigation and adaptation projects.[102]

The *Dilute Interventionism* model is a regulatory framework that can be used in different sectors, including climate change.[103] However, climate change poses a unique problem that requires the model to be reconfigured to achieve regulatory objectives effectively while minimizing the intervention burden on corporations.[104] Egypt as part of its Nationally Determined Contributions under the Paris Agreement aims to reduce its greenhouse gas emissions by 50% from its business-as-usual scenario by 2030.[105] That is equivalent to 690 million tons of carbon dioxide per year.[106] To achieve this target, the *Dilute Interventionism* model can be used in Egypt's climate change regulatory framework to restructure sanction mechanisms at different stages of the enforcement pyramid and upon

98 *Ibid.*
99 *Ibid.*
100 *Ibid.*
101 *Ibid.*
102 *Ibid.*
103 Kikelomo Kila, *Corporate Regulation for Climate Change Mitigation in Africa*: *A Case for Dilute Interventionism* (1st Edition, Routledge, 2022).
104 Ibid.
105 UNFCC, 'Egypt's First Updated Nationally Determined Contributions, *Supra 37.*
106 Ibid.

compliance incentivize corporations to participate in climate change mitigation by providing them with tax credits or other financial rewards.[107]

Moreover, the regulatory framework can set emissions reduction targets for corporations, which can be gradually increased over time. Additionally, corporations can be required to disclose their emissions data and adopt best practices for reducing carbon emissions. Though Egypt has relatively low carbon emissions compared to developed countries,[108] the impact of climate change on the country is severe. The country is vulnerable to droughts, floods, and other extreme weather events.[109] Therefore, it's crucial to strike a balance between incentivizing corporations to reduce their carbon emissions and protecting vulnerable communities from the impacts of climate change. This is because the key to achieving this goal is to motivate corporations to participate in climate change mitigation while minimizing the regulatory burden on them.[110] The government can achieve this by using incentives such as tax credits, subsidies, and grants to encourage corporations to adopt climate-friendly practices. For example, if a company installs solar panels or uses more energy-efficient equipment, it can receive a tax credit or subsidy. This will encourage companies to reduce their carbon emissions while also benefiting financially. Another way to incentivize corporations to reduce their carbon emissions is by utilizing market-based mechanisms such as carbon pricing.[111] The government can put a price on carbon emissions, which would create a financial incentive for companies to reduce their emissions. This would also generate revenue for the government, which could be used to fund other climate change mitigation projects. Implementing the *Dilute Interventionism* model requires three key features (Framework Legislation, Independent/strong Regulator and Technical competence discussed below).

9.1 Framework Legislation

To ensure compliance with climate change regulations, Egypt must draft a comprehensive framework legislation based on the principle of *Dilute Interventionism* to address environmental challenges effectively. This approach would involve initially providing strict legal instruments with specific and rigorous prescriptive measures to demonstrate the state's authority over corporations.[112] As corporations comply with these measures, regulatory interventions can be gradually de-escalated, and a co-regulatory approach can be introduced to encourage corporations to

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[107] Kikelomo Kila, *Supra 103*

[108] Henrique Morgado and others, 'International Progress on Climate Action' (2022) <https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/738187/EPRS_BRI(2022)738187_EN.pdf>. accessed 9 March 2023.

[109] World Bank, 'World Bank Climate Change Knowledge Portal' (2021) <https://climateknowledgeportal.worldbank.org/country/egypt/vulnerability> accessed 9 March 2023.

[110] Kikelomo Kila, *Supra 103.*

[111] UNFCCC, 'About Carbon Pricing' (Unfccc.int2022) <https://unfccc.int/about-us/regional-collaboration-centres/the-ciaca/about-carbon-pricing> accessed 9 March 2023.

[112] Kikelomo Kila, *supra 103.*

reduce their carbon footprint, adopt sustainable practices, and comply with climate change regulations.[113] The co-regulatory approach involves collaboration between regulatory bodies, the state, and corporations to achieve greater compliance.[114] This approach recognizes that corporations can play a role in regulating themselves in certain areas of the regulatory framework once regulatory standards have been met. The co-regulatory approach would promote cooperation between corporations and regulatory bodies, leading to greater compliance and effectiveness in addressing climate change.[115]

Thus, drafting this regulation should begin with strict prescriptive foundations like loss of operating license rather than a fine not exceeding ten million Egyptian pounds or imprisonment for a period not exceeding five years, or both; to less severe prescriptive sanctions like the closure of the operating facility, criminal/civil sanctions like imprisonments/fines against the corporations and most senior officers in the corporations and end with a largely self-regulatory framework by corporations made up incentives and assistance to the corporations to encourage compliance with the prescribed regulatory standards.[116] The regulatory provision on this point can be drafted as follows:

> The system of regulating climate change activities by corporations in Egypt shall be based on the following approach –
>
> *Section 2: Regulatory Objectives*
>
> (1) Corporations that fail to comply with the prescribed regulatory standards under this law shall face strict sanctions. These sanctions may include, but are not limited to, the following:
>
> (a) Loss of operating license.
>
> (b) Closure of the operating facility.
>
> (c) Criminal sanctions, including imprisonment and/or fines against the corporations and most senior officers in the corporations.
>
> (2) Once corporations comply with the prescribed regulatory standards, the regulatory interventions can be de-escalated, and a co-regulatory approach can be introduced.
>
> (3) The co-regulatory approach shall be based on incentives and assistance to the corporations to encourage compliance with the prescribed regulatory standards. The incentives may include, but are not limited to, the following:
>
> (a) Tax incentives for corporations that demonstrate compliance with the prescribed regulatory standards.
>
> (b) Technical assistance and training to help corporations comply with the prescribed regulatory standards.

[113] *Ibid.*
[114] *Ibid.*
[115] *Ibid.*
[116] *Ibid.*

(c) Public recognition for corporations that demonstrate exceptional compliance with the prescribed regulatory standards.

(4) Once corporations demonstrate compliance with the prescribed regulatory standards, they can be entrusted to regulate themselves in certain areas of the regulatory framework.

(5) The self-regulatory framework shall be based on voluntary compliance by corporations.

(6) The government shall monitor the self-regulatory framework to ensure continued compliance with the prescribed regulatory standards.

The primary objective of this approach is to incentivize corporations to adhere to the Climate Change Act and create an enforcement structure that permits their active participation in the regulatory framework, which ultimately leads to self-regulation.[117] This entails providing corporations with co-regulatory measures that can be used to rectify any non-compliance issues as they comply with the regulations. If corporations meet the required intervention measures up to a certain level, they may eventually become self-regulating entities.[118]

9.2 Climate Change Regulator

To effectively implement the *Dilute Interventionism* model, the appointment of a sole, independent climate change regulator is crucial.[119] The primary responsibility of this regulator will be to grant licenses to corporations and ensure their compliance with the regulations through monitoring and enforcement. This approach is necessary to enforce the *Dilute Interventionism* regulatory model, where corporations obtain a permit from the regulator before undertaking any activity that may pose a threat to human health or the environment.[120]

The license granted by the regulator will serve as legal authorization for corporations to engage in carbon emission activities and will form the basis for continuous operation.[121] In addition, licensing fees may be included to cover regulatory costs and other expenses related to the implementation of the Climate Change Act.[122] It is essential to note that funding is critical to the success of the regulatory framework, and the inclusion of licensing fees will ensure that corporations contribute to the costs associated with enforcing compliance with the regulations. The establishment of the climate change regulator in the relevant framework legislation can be expressed in the following form to achieve the desired objectives:

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[117] *Ibid.*
[118] *Ibid.*
[119] *Ibid.*
[120] *Ibid.*
[121] *Ibid.*
[122] *Ibid.*

Part 2: Climate Change Regulator
Section 2: Appointment of Independent Sole Regulator and Licensing of Corporations

(1) The National Climate Change Regulatory Commission (NCCRC) is hereby established as an independent body to oversee the implementation of the Climate Change Act and enforce compliance with the regulations.
(2) The Commission shall be independent and impartial in the exercise of their duties and shall be subject to review and oversight by an independent authority to ensure accountability and transparency in the implementation of the Climate Change Act.
(3) The Commission shall have the power to –
   a. grant licenses to corporations for the commencement or modification of activities that may pose a threat to human health or the environment. These licenses shall serve as legal authorization for corporations to engage in carbon emission activities.
   b. monitor and enforce compliance with the regulations and may impose penalties or revoke licenses for non-compliance.
   c. incorporate licensing fees to cover regulatory costs and other expenses related to the implementation of the Climate Change Act. These fees shall be paid by corporations as a contribution to the costs associated with enforcing compliance with the regulations.
   d. establish standards for licensing, monitoring, and enforcement to ensure the effective implementation of relevant regulatory models suitable for incentivising corporate participation in climate change mitigation in Egypt.
   e. Engage external consultants to advice and provide technical services on various aspects of its regulatory functions as highlighted in this Act.

The relevant provisions establishing the proposed regulator is vital in determining its effectiveness and ability to restrain corporate disregard for regulatory objectives and incentivising corporate participation in climate change mitigation. Consequently, the above draft provision declares the independence of the corporation and confers relevant powers on the regulator to implement the appropriate regulatory framework – dilute interventionism.

9.3 Technical Competence

To ensure effective regulation, the regulator must possess the necessary technical expertise to understand the complexities of the corporations they are regulating, evaluate the compliance of corporations with the Climate Change Act, establish appropriate standards and issue licenses with the necessary conditions and restrictions where necessary.[123]

This may be achieved through the recruitment of external consultants with the requisite technical expertise to provide advice and support to the regulator in the assessment and monitoring of corporations' compliance with the regulations and/or the establishment of partnerships with technical institutions to provide the necessary expertise and cover the breadth of mitigation issues.[124] Such institutions may include universities, research institutions, and professional bodies with technical expertise in various fields related to climate change mitigation.

10. *DILUTE INTERVENTIONISM* AND SUBSIDIARY LEGISLATION BY THE REGULATOR

The successful implementation of the *Dilute Interventionism* Model is contingent on a comprehensive regulatory framework[125] that covers various aspects of climate change, including mitigation and adaptation. The framework must be designed in a way that grants significant power to an autonomous climate change regulator to implement the *Dilute Interventionism* Model.[126] This includes enforcing obligations and responsibilities on corporations, governmental bodies, and individuals concerning climate change mitigation and adaptation. The regulatory framework must also be resilient enough to withstand opposition from corporations that may resist regulatory oversight.[127] This can be achieved by establishing clear and specific legal instruments with strict prescriptive measures to demonstrate the state's authority over corporations. Such measures may include the loss of operating licenses, the closure of operating facilities, and criminal or civil sanctions against corporations and their senior officers.[128]

The regulatory framework should also include co-regulatory approaches that foster collaboration between regulatory bodies, the state, and corporations to promote compliance. As corporations comply with the prescribed intervention measures, regulatory interventions can be de-escalated, and a self-regulatory approach introduced.[129] It is important to state that the regulatory framework must be drafted in a way that allows the regulator to create subsidiary legislation to put into effect the general provisions in the framework legislation.[130] This ensures that the regulatory

123 *Ibid.*
124 *Ibid.*
125 *Ibid.*
126 *Ibid.*
127 *Ibid.*
128 *Ibid.*
129 *Ibid.*
130 *Ibid.*

framework remains flexible and adaptable to changing circumstances, while also being able to address specific issues that may arise.

To ensure the effective implementation of the Climate Change Act, it is crucial to consolidate multiple sectors responsible for carbon emissions under a single comprehensive framework. This approach will provide clarity to corporations regarding their obligations, the regulatory body responsible for enforcing compliance, and timelines for meeting regulatory standards. To achieve this, regulators for various sectors responsible for carbon emissions and atmospheric pollution, such as the oil and gas, manufacturing, and electricity and power sectors, among others, should be divested of their powers over carbon emissions regulations. These powers should be vested in the sole independent regulator responsible for climate change mitigation and adaptation.[131]

This consolidation will enable the regulator to focus on achieving its objectives without duplicating regulatory functions between different entities.[132] As a result, the regulatory process will become more efficient and effective in reducing carbon emissions and promoting sustainable development. The relevant provision to achieve this approach can be drafted as follows:

> *Section 3: Consolidating Regulatory Powers on Carbon Emissions and Atmospheric Pollution*
>
> 1. To prevent duplication of regulatory functions and ensure a comprehensive and effective regulatory framework for climate change mitigation and adaptation, the following provisions shall apply with effect from the coming into force of this Act -
>   a. The regulatory powers relating to carbon emissions and atmospheric pollution shall henceforth be vested solely in the Commission established under this Act.
>   b. All sectoral regulators previously responsible for carbon emissions and atmospheric pollution regulations shall be divested of such powers and their functions transferred to the Commission.

11. IMPLEMENTING *VETO FIREWALL* PROTECTION FOR THE CLIMATE CHANGE REGULATOR IN EGYPT

A firewall is a piece of software or hardware that is used to protect against unauthorized network access.[133] To ensure the independence and impartiality of the proposed sole independent climate change regulator in

[131] *Ibid.*
[132] *Ibid.*
[133] Chinmayee Deshpande, 'What Is Firewall: Types, How Does It Work & Advantages' (2022) Simplilearn' <https://www.simplilearn.com/tutorials/cyber-security-tutorial/what-is-firewall#:~:text=Firewalls%20are%20network%20security%20systems> accessed 1 March 2023.

Egypt's regulatory framework, a *Veto Firewall* protection mechanism must be established. The term '*Veto Firewall* protection' refers to a legislative protective wall around the regulator using the legislative veto powers to prevent undue influence or pressure from members of the executive.[134] This means that the most senior officials of the regulator should be appointed by the President only upon the approval of the Senate (Upper Legislative House). Therefore, to provide additional protection, a single or dual-tier *Veto Firewall* system should be established to safeguard the sole regulator from any undue influence or pressure.[135] This is to prevent any executive member from interfering with the regulatory functions of the independent regulator, thereby ensuring the regulator's autonomy and impartiality in carrying out its mandate to mitigate and adapt to climate change.[136]

The single tier system operates where only one veto process is instituted prior to the appointment and removal of the senior officials of the regulator. In this case, the legislature (preferably Senate) can play the veto role. A dual-tier system, however, operates where an independent body is required to recommend the approval or removal of the senior officials of the regulator by the President which is then subjected to approval by the Senate. Such stringent veto system is usually instituted for the vital regulatory sectors with high risk of executive interference e.g., the banking, judicial and election sectors. In Egypt, the single-tier system is used in the appointment and termination of most senior political and regulatory officials including the Prime Minister, heads of authorities, public bodies and diplomatic missions as this is done without the approval of the House of Representatives.[137]

Nevertheless, the dual-tier system is used in the appointment of the Governor of the Central Bank of Egypt (CBE). This appointment is governed by the Central Bank and the Banking System Law No. 194 of 2020,[138] which outlines the qualifications, appointment process, and responsibilities of the Governor of the Central Bank of Egypt. The appointment is made by the President of the Arab Republic of Egypt upon the recommendation of the Prime Minister and approval of the House of Representatives. Specifically, Article 6 of the law[139] states that 'The Governor and the Deputy Governors of the Bank shall be appointed by a Presidential Decree, upon the recommendation of the Prime Minister and subject to approval of the House of Representatives'. The Governor is selected from a pool of experienced individuals in the field of finance and economics, and the appointment is based on qualifications and relevant experience in the field. The CBE Governor's term is typically 4 years, and the governor can be reappointed for additional terms.

Similarly, the appointment of the Chief Justice of the Supreme Constitutional Court, who is also the head of the judiciary, is done by the

134 Kikelomo Kila, *Supra* 103
135 *Ibid.*
136 *Ibid.*
137 See, for instance, Article 146 of the Egyptian Constitution.
138 The Central Bank of Egypt (CBE) Law No. 88 of 2003.
139 Article 6 of the Central Bank of Egypt Law.

President of the Republic after consulting with the Supreme Judicial Council with the approval of the House of Representatives.[140]

The idea of *Veto Firewall* protection is rooted in the principles of good governance and is a recommended best practice for ensuring the independence of regulatory bodies.[141] To implement the *Veto Firewall* protection for the climate change regulator in Egypt, the dual-tier *Veto Firewall* protection is recommended.[142] This is because it is arguable that the climate emergency and the requirement for urgent and effective mitigation and adaptation strategies places the climate change sector on a par with other vital sectors of Egypt's economy such as the banking, judicial and electoral sectors. Consequently, the regulator should be dual-protected by the dual-tier *Veto Firewall* protection by creating two layers of protection against political interference. In relation to the climate change regulator, the first veto layer should involve the establishment of an independent body responsible for recommending candidates for key positions. This body should consist of experts with relevant experience in the field, and their recommendations should be based on merit and expertise rather than political considerations.

The second layer of protection will then be the approval of the National Assembly (either the Senate or House of Representatives). This ensures that the recommendations are subject to scrutiny and oversight by elected representatives, providing an additional layer of accountability and reducing the likelihood of political interference.

The institutionalisation of *Veto Firewall* protection in the proposed framework legislation can be drafted as follows:

Section 4: Appointment and Removal of Members of the Commission

1) The appointment of the Chairman and Senior Officials of the NCCRC shall be done by the President based on recommendations by an independent body of experts to be set up by the Chief Justice.
2) The appointment by the President shall be subject to approval by the House of Representatives.
3) The Chairman and Senior Officials of the NCRC shall only be removed by the President on grounds of proven misconduct based on a recommendation by the body of Independent Experts in subsection (1) above and subject to the approval by the House of Representatives.

[140] Article 185 of the Constitution of the Arab Republic of Egypt.
[141] OECD, 'Independence of Regulators and Protection against Undue Influence - OECD' (2023) <https://www.oecd.org/gov/regulatory-policy/independence-of-regulators.htm> accessed 9 March 2023.
[142] Kikelomo Kila, *Supra 103*

12. DESIGNING A *DILUTE INTERVENTIONISM* PYRAMID IN EGYPT

Designing a *Dilute Interventionism* pyramid in Egypt as a framework for climate change mitigation and adaptation is a promising strategy. By using a mild intervention as the first step in the enforcement pyramid, such as shutting down facilities responsible for violating recommended carbon emissions, it can discourage noncompliance without imposing severe criminal sanctions that may hinder participation in climate change mitigation and adaptation efforts.[143]

As corporations increasingly comply with climate change regulations, the next recommended step is to hold the most senior officials accountable through civil and administrative sanctions.[144] These measures can include fines, penalties, or administrative actions, such as the suspension or revocation of permits or licenses. By imposing such measures, the regulatory framework can effectively encourage corporations to comply with climate change regulations and uphold their responsibilities to mitigate and adapt to the effects of climate change.

In the third step of the regulatory pyramid, corporations are allowed to establish self-regulatory or voluntary measures for meeting climate change regulatory objectives within the overall framework established by the Egyptian Government.[145] As long as the corporation complies with these measures, regulators and the government can prioritize providing economic and fiscal incentives to encourage comprehensive implementation of climate change mitigation and adaptation projects.[146] These measures can include tax incentives, rebates, or government grants and subsidies for sustainable projects. The use of such incentives can effectively encourage corporations to fully commit to climate change mitigation and adaptation efforts, promoting sustainable practices while also benefiting the economy.

The modalities of implementing this *Dilute Interventionism* pyramid will be determined by the regulator in a subsidiary legislation to be promulgated in exercise of its statutory powers. The importance of utilising a subsidiary instrument instead of the primary statute for this purpose is the flexibility for amendment and adjustments of the contents of the pyramid as needed from time to time, particularly in the early days of its implementation where flexibility is required to responding to changing dynamics of the regulatory field as the regulator establishes its regulatory dominance over corporations.

143 *Ibid.*
144 *Ibid.*
145 *Ibid.*
146 *Ibid.*

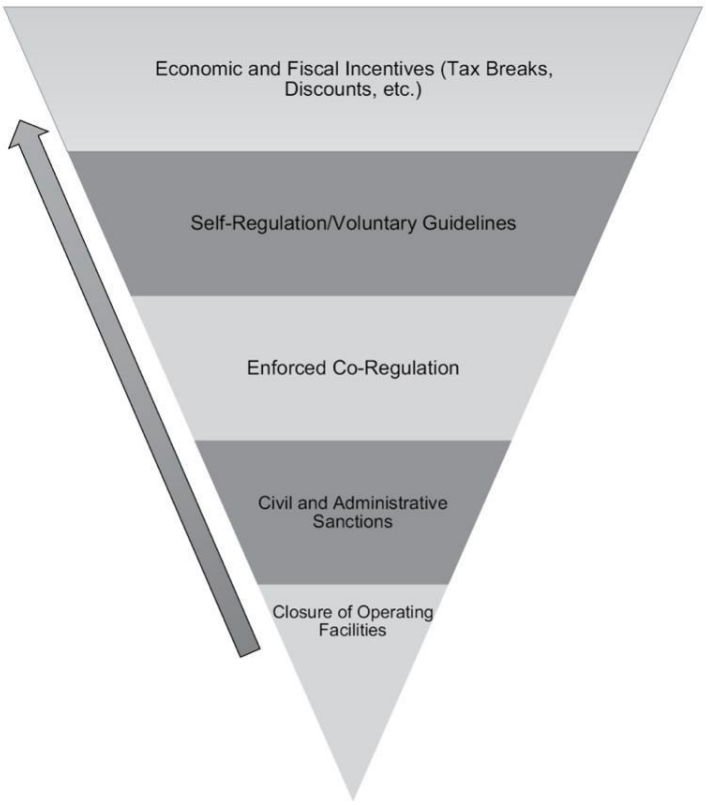

Figure 1: Corporate Regulation for Climate Change Mitigation in Africa (Source: Kila[147])

13. CHALLENGES TO IMPLEMENTING *DILUTE INTERVENTIONISM* AND *VETO FIREWALL* PARADIGM IN EGYPT

The implementation of *Dilute Interventionism* and *Veto Firewall* paradigm in Egypt may face several challenges and they are:

13.1 Lack of Political Will and Awareness of the Severity of Climate Change

The lack of political will and awareness of the severity of climate change may hinder the implementation of the proposed framework. Climate change may not be a priority for the government and policymakers, and they may not be willing to allocate resources to address it. For example, the New National Renewable Energy Strategy 2008 and the Egypt National Climate Change Strategy (NCCS) 2050 may lack the necessary funding or resources for their implementation, rendering them ineffective in achieving their goals. To overcome this obstacle, policymakers need to be educated on the impacts of climate change, the benefits of reducing emissions, and the potential for green economic growth.

[147] *Ibid.*

13.2 Resistance from the Private Sector

Resistance from the private sector is another potential challenge to the implementation of the *Dilute Interventionism* model. Senior officials of corporations may resist civil and administrative sanctions as they may view such measures as excessive and harmful to their interests. For example, fines or the suspension or revocation of permits or licenses may have a negative impact on corporate profits. Overcoming this obstacle requires a significant shift in corporate culture and mind set towards environmental responsibility. The government may need to provide more comprehensive training and education to private sector actors on the benefits of sustainable practices and the risks of climate change.

13.3 Limited Financial Capacity of the State

Limited financial capacity of the state is another potential obstacle to the implementation of the *Dilute Interventionism* model. Providing incentives to corporations, such as tax incentives, rebates, or government grants and subsidies for sustainable projects, may require significant financial resources. If the government does not have sufficient funds to allocate to such measures, it may be difficult to encourage corporations to comply with climate change regulations. To overcome this obstacle, the government may need to explore alternative funding mechanisms, such as public-private partnerships, international climate finance, or green bonds.

13.4 Bureaucratic Hurdles

Bureaucratic hurdles are another potential challenge to the successful implementation of the *Dilute Interventionism* model. The establishment of an independent climate change regulator may face bureaucratic hurdles, as existing sectoral regulators may resist divesting their powers over carbon emission and atmospheric pollution regulations. Overcoming this obstacle may require a coordinated effort from various stakeholders and a significant push from the government to create a new regulatory body or to give existing regulators clear mandates for implementing climate change regulations. In addition, there may be a need for more extensive collaboration between sectoral regulators to ensure that their policies are aligned with climate change mitigation and adaptation objectives.

14. CONCLUSION

In conclusion, Egypt can utilize the *Dilute Interventionism* model and *Veto Firewall* paradigm to effectively regulate corporations involved in activities that contribute to climate change. However, challenges such as lack of political will and awareness of the severity of climate change, resistance from the private sector, limited financial capacity of the State, and bureaucratic hurdles must be overcome to ensure the successful implementation of these strategies. To mitigate the impact of climate change, Egypt must prioritize both climate change mitigation and adaptation through a comprehensive regulatory framework that incorporates best practices from around the world. Swift action is crucial given the urgency of

the climate change crisis and raising public awareness and educating citizens about the importance of mitigating climate change. This can be achieved by providing capacity-building programs, increasing public education, and establishing effective monitoring and enforcement mechanisms. By doing this, the Government of Egypt can ensure long-term environmental sustainability and mitigate the impact of climate change.

To ensure a sustainable future for Egypt, it is recommended that the government collaborates with relevant stakeholders to develop a comprehensive legislative framework that promotes economic growth while ensuring compliance with climate change regulations. The *Dilute Interventionism* model and *Veto Firewall* paradigm are promising strategies that could aid in this endeavour, but their effectiveness hinges on the government's commitment to implementing a tailored regulatory framework. Therefore, the government must take proactive steps to engage with stakeholders to develop a comprehensive legislative framework that covers all relevant aspects of climate change mitigation and adaptation, while balancing environmental protection and economic growth.

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The author(s) solemnly declare(s) that this research has not involved any human subject (body or organs) for experimentation. It was not a clinical research. The contexts of human population/participation were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of Helsinki Declaration does not apply in cases of this study or written work.

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The author(s) solemnly declare(s) that this research has not involved any animal subject (body or organs) for experimentation. The research was not based on laboratory experiment involving any kind animal. The contexts of animals not even indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of ARRIVE does not apply in cases of this study or written work.

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