DECLARATION

I, KORIR FLORENCE CHEBET, do hereby declare that this research is my original work and that to the best of my knowledge and belief, it has not been previously, in its entirety or in part, been submitted to any other university for a degree or diploma. Other works cited or referred to are accordingly acknowledged.

Signed: .....

Date: 06/03/2018

This Research Proposal has been submitted for examination with my approval as University Supervisor.

for Desmond Tutu

Signed: .....

Date: 29.5.18

DESMOND TUTU

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DEDICATION

I would like to dedicate this dissertation to my parents, Ken Korir and Caroline Korir as well as my siblings, Emmanuel and Rose. Thank you for your never ending support.

ACKNOWLDEGMENTS

I wish to thank my supervisor Mr Desmond Tutu for his guidance, support and constructive criticism during this period.

ABSTRACT

Water is an essential resource in ensuring the survival of man and is required for different activities and this includes industrial activities. However, most industrial activities in Kenya are one of the major contributors of water pollution caused by their discharge of effluents into these water resources. This study evaluates the adequacy of the laws set to regulate and prohibit the discharge of effluents by industries, and further assesses its adequacy in ensuring proper implementation of the regulations as well as compliance by the industries. In addition, it carries out a comparative study with Malaysia's legal framework and additional measures and techniques taken to ensure implementation and compliance. Finally, the study makes recommendations that the Kenyan legal and institutional framework should model to ensure compliance.

LIST OF ABBREVIATIONS

DEL	Discharge Effluent Licence
EIA	Environmental Impact Assessment
EIAL	Environmental Impact Assessment Licence
EMCA	Environmental Management Co-ordination Act
NEMA	National Environmental Management Authority
WRMA	Water Resource Management Authority

CHAPTER ONE: INTRODUCTION

1.0 BACKGROUND

Water is considered to comprise about 71% of the earth's surface, with that said, water is the most important resource and is depended on for different human activities such as purposes of growth and development.[1] Clean, safe and sufficient water is also essential for the survival of all living beings as well as the protection and conservation of the ecosystems.[2]

According to the United Nations, Kenya is amongst the countries that are considered to be habitually water scarce.[3]The universal standard for a country to be considered to be sufficiently supplied with water, is 1000 cubic meters. Therefore, a country is classified as water scarce if its annual production is below 1000 cubic meters.[4]

In Kenya, some of the population, around 43% have no access to water and those that do, have access to polluted water.[5] As a result, this has led to the increase of illnesses and the progressive deterioration of health to the people consuming this contaminated water,[6] as well as the destruction

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[1]Akali N M, Nyongesa N D, Masinde N E and Miima J B, 'Effluent Discharge by Mumias Sugar Company in Kenya: An Empirical Investigation of the Pollution of River Nzoia' 1(1), Sacha Journal of Environmental Studies, 2011.

[2]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010 -<http://wedocs.unep.org/bitstream/handle/20.500.11822/7906/-Clearing%20the%20Waters_%20A%20focus%20on%20Water%20Quality%20Solutions%20-2010Clearing_the_Waters.pdf?sequence=3&isAllowed=y> on 28 July 2017.

[3]Ogendi G M, Ong'oa I M, 'Water Policy, Accessibility and Water Ethics in Kenya' 7(1) *Santa Clara Journal,* 2009, 177.

[4]Ogendi G M, Ong'oa I M, 'Water Policy, Accessibility and Water Ethics in Kenya', 177.

[5]Marshall S, 'The Water Crisis in Kenya: Causes, Effects and Solutions' 2(1), *Global Majority E-Journal*, (2011), 31-45.

[6]Marshall S, 'The Water Crisis in Kenya: Causes, Effects and Solutions', 31-45.

of the surrounding ecosystems.[7] Many challenges are faced regarding water provision in Kenya due to erratic weather patterns that have subsequently caused droughts and water shortages,[8] and furthermore, the various human activities such as industrial undertakings have also contributed to this situation which has led to the degradation of the water quality as well as its quantity.[9]

The Environmental Management and Co-ordination Act[10] (1999) and its subsidiary legislations; the Environmental Management and Co-ordination (Water Quality) Regulations (2006)[11], The Water Act (2016)[12] are the relevant legislations that give provisions on water pollution caused by discharge of industrial effluents in Kenya.

The historical background of the Environmental Management and Co-ordination Act[13] and its subsidiary legislations, involves its enactment in 1999 against a backdrop of 78 sectorial laws that were dealing with the several aspects of the environment.[14] The objective of its enactment, was to unify the laws providing on the general management of the environment in Kenya.[15]

The Water Act[16] was first passed and gazetted in 2002 by the water sector reforms in Kenya. The new Act introduced new water management institutions that would govern water as well as sanitization. The Act also established the Water Resource Management Authority which was to manage, conserve and regulate all the water resources.[17] The recent Water Act[18] of 2016 then

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[7]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-<http://wedocs.unep.org/bitstream/handle/20.500.11822/7906/-Clearing%20the%20Waters_%20A%20focus%20on%20Water%20Quality%20Solutions%20-2010Clearing_the_Waters.pdf?sequence=3&isAllowed=y> on 28 July 2017.

[8]-<http://water.org/country/kenya/> on 19 January 2017.

[9]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-<http://www.unep.org/PDF/Clearing_the_Waters.pdf> Accessed on 19 January 2017.

[10]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[11]*Environmental Management and Coordination (Water Quality) Regulations* (No. 121 of 2006).

[12]*Water Act* (Act No. 43 of 2016)

[13]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[14]-<http://www.unep.org/nairobiconvention/national-environment-management-authority-nema-kenya> on 21 August 2017.

[15]-<http://www.unep.org/nairobiconvention/national-environment-management-authority-nema-kenya> on 21 August 2017.

[16]*Water Act* (Act No. 8 of 2002)

[17]Moraa H, Otieno A, 'Water governance in Kenya: Ensuring Accessibility, Service delivery and Citizen Participation' iHub Research, July 2012-<https://files.ihub.co.ke/ihubresearch/uploads/2012/july/1343052795__537.pdf> on 22 January 2018.

[18]*Water Act* (Act No. 43 of 2016)

repealed the prior Act, and its aim was to align national water management and water services with the Constitution of Kenya 2010 predominantly on the provisions that required the services to be devolved to the county governments.[19]

However, despite the existence of these provisions and regulations on effluent discharge by industries, water pollution has still been on the rise in Kenya, which has led to adverse health effects on the residents and the surrounding aquatic environments existing near these industries.[20] This is seen in the lead poisoning of the residents of the Owino Uhuru slums that I will be relying on as a case study. In the Owino Uhuru case study, a lead battery recycling factory owned by EPZ Ltd was erected just 50 meters away from the Owino Uhuru slums and further, after investigations and experiments were carried out, the plant was found to emit toxic fumes and released untreated effluents leading to pollution of the soil and streams surrounding the area. The conclusions deduced after the investigations revealed a high concentration of lead in the surrounding environment, and this was clearly a detriment to the residents' health.[21]

Some of the challenges observed in the case study was the failure of the owners of the factory to carry out an Environmental Impact Assessment (EIA) before the erection of the project[22] as is required by the Kenyan Law.[23]

In addition, the plant was discharging effluents into the environment including the community's surrounding water sources without regard to the set EMCA regulations and without obtaining a licence to do so.[24]

In an Interview, Jane Cohen, a senior environment researcher at Human Rights Watch stated that three workers had died, and others were at risk of continuous lead poisoning due to the failure of the government to enforce the present environmental laws and regulations.[25] She further stated that

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[19]-
<http://webcache.googleusercontent.com/search?q=cache:YPRFukAJ6OUJ:www.kwia.org/index/2017/07/27/implementation-of-the-water-act-2016/+&cd=5&hl=en&ct=clnk&gl=ke> on 22 January 2018.

[20]-< https://softkenya.com/information/water-pollution-in-kenya/> on 7 February 2017.

[21]Morlin S, 'Lead poisoning - fighting industrial pollution in Kenya is a dangerous business' Ecologist, 20 April 2015- http://www.theecologist.org/Interviews/2831943/lead_poisoning_fighting_industrial_pollution_in_kenya_is_a_dangerous_business.html on 5 December 2016.

[22]-< https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[23]Section 58, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[24]-< https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[25]-< https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

had the authorities adhered to the laws, the considerable environmental pollution would have been avoided.[26]

With the progressive poor implementation of these regulations, industrial activities have resulted and will continue to result in poor water quality and quantity.[27]

1.1 STATEMENT OF THE PROBLEM

This study seeks to evaluate the adequacy of the Environmental Management and Co-ordination Act[28]and its subsidiary legislations in their capability to regulate the discharge of effluents into the surrounding water sources by industries in Kenya and consequently, their prevention of industrial effluent discharge in this aspect.

1.2 JUSTIFICATION OF THE STUDY

Even with the existence of numerous laws addressing water pollution[29] and with some prohibiting, and regulating the discharge of effluents by industries, there is still poor implementation of these laws especially in the industrial sector.[30] Further, there is continuous depositing of chemicals and effluents in prohibited areas by industries and this is done without an authorised EDL, as is seen in the Owino Uhuru slums case study.[31] This is then discovered by the necessary authorities after the damage is already done.

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[26]-< https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[27]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-<http://www.unep.org/PDF/Clearing_the_Waters.pdf> on 31 January 2017.

[28]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[29]Wabai Y '[Ambassador Report] Water Pollution in Kenya' Tunza Eco-Generation, 4 April 2017-< http://tunza.eco-generation.org/resourcesView.jsp?boardID=ambassadorReport&viewID=42780&searchType=&searchName=&pageNumber=2> on 28 July 2017.

[30]Morlin S, 'Lead poisoning - fighting industrial pollution in Kenya is a dangerous business' Ecologist, 20 April 2015-<http://www.theecologist.org/Interviews/2831943/lead_poisoning_fighting_industrial_pollution_in_kenya_is_a_dangerous_business.html> on 5 December 2016.

[31]Morlin S, 'Lead poisoning - fighting industrial pollution in Kenya is a dangerous business' Ecologist, 20 April 2015-<http://www.theecologist.org/Interviews/2831943/lead_poisoning_fighting_industrial_pollution_in_kenya_is_a_dangerous_business.html> on 5 December 2016.

In Kenya, industries constitute the highest contributors of effluent discharge, and some of these effluents are harmful not only to the environment but to humans as well.[32] According to Shadrack Kiithia, water pollution and the degradation of water quality in developing countries such as Kenya, is as a result of the growing quest to attain industrialization status.[33] Furthermore, with the increase of industrial development, comes the increase in the production of solid, gaseous and liquid (effluent) wastes.[34] Kaluli *et al* are of the same opinion and also state that with the increase in industrial development, effluents with more complex compositions will be produced and will lead to increased public health risks.[35]

In addition, Kiithia states that the pollution of water by industrial activities leads to poor quality of water which makes it unsuitable for use.[36] As a result, there is a high cost for water supply since treatment of the contaminated water is more expensive,[37] and the industries find it cheaper to discharge effluents into the water sources untreated.[38]

Odhiambo *et al*, are also of the view that industrial effluents pose a great hazard and they also point out the importance of monitoring the discharge of effluents as a management tool that, guarantees the protection of the environment such as the water resources.[39] This valuation of parameters that monitor industrial discharge of effluents is vital to the environmental quality.[40]

Kithiia and Kaluli *et al* all state that there is need for effluent discharge standards,[41] as well as water quality standards and guidelines[42] in order to protect the country's water resources from further degradation.[43] Hellen Apondi in assessing the efficiency of the Dandora industrial and

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[32]Kithiia S M, *Water Quality Degradation Trends in Kenya over the Last Decade,* InTech, Croatia, 2012, 509.
[33]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 522.
[34]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 510.
[35]Kaluli J W, Githuku C, Home P and Mwangi B M, 'Towards a National Policy on Wastewater Reuse in Kenya' 13(1) *Journal of Agriculture Science and Technology*, 2011, 117.
[36]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 510.
[37]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 510.
[38]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 511.
[39]Odhiambo J, Yusuf A, Onyatta J, 'Assessment of selected parameters for industrial effluents from some industrial sites in Nairobi Kenya' *Universal Journal of Chemistry*, 2016, 65.
[40]Odhiambo J *et al* 'Assessment of selected parameters for industrial effluents from some industrial sites in Nairobi Kenya' 65.
[41]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 523.
[42]Kaluli *et al,* 'Towards a National Policy on Wastewater Reuse in Kenya' 121.
[43]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 523.

domestic wastewater, also emphasized on the need for measures that ensure the final effluent quality is according to the set standards.[44]

Kithiia further states that in setting these standards, one could rely on the already existing standards that may be national or international, as well as other established standards such as those of the International Standards Organization (ISO) among others.[45] The use of modern techniques and strategies such as Best Management Practice (BMP), would also be helpful in controlling water quality degradation[46]caused by the discharge of effluents by industries.

According to Kithiia and Ongwenyi, in order to avoid the adverse effects of water pollution, there is need to properly comprehend the amount of water used by a development project and consequently, the amount of effluents they plan to discharge into the water resource.[47] Further, industries could utilize the effluents discharged in some of their industrial processes, especially the wastewater, once it has been treated and this could be ensured by having the industries constructed downstream of water resources such as rivers rather than upstream, which would lead to a cleaner environment.[48]

With this increase in water pollution and water quality degradation, there is need for more stringent measures to address this problem and to reduce the water pollutants and water quality degradation.[49] There is also need to involve the public as well as the government ministries and the water resources stakeholders in the prevention of water resources and in raising awareness of the adverse effects of water pollution.[50]

Kaluli *et al,* in encouraging the need to introduce a national policy providing for wastewater reuse, discuss the importance of having the discharger, and in this case the industry, of effluents or wastewater bearing the responsibility of ensuring compliance with the policy as well as the set

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[44]Sewe A H, 'A study on the efficiency of Dandora domestic and industrial wastewater treatment plant in Nairobi' Unpublished, Jomo Kenyatta University of Agriculture and Technology, Nairobi, 2010.
[45]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 523.
[46]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 524.
[47]Kithiia S and Ogwenyi G, 'Some problems of water quality degradation in the Nairobi River sub-basins in Kenya' 243 AHS Publishers, 1997.
[48]Kaluli *et al,* 'Towards a National Policy on Wastewater Reuse in Kenya' 119.
[49]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 512.
[50]Kithiia, *Water Quality Degradation Trends in Kenya over the Last Decade,* 525.

discharging standards.[51] Furthermore, they are also to ensure that they treat the effluents within the specified timeframe before discharging them.[52]

According to Joseph Oginga Onjala, industries use large amounts of water from water sources and subsequently, these industries discharge effluents into the beginning of the same streams rather than at the end.[53] In addition, he mentions the need for better water policy and institutional structures that deal with the emerging issues in social and economic context.[54] Further, the efficient management of industrial water resources should incorporate both water use and the management of wastewater resources in order for sustainability to be achieved in Kenya.[55]

Benjamin Barczewski by relying on the Thika highway development project as a case study, generally questioned Kenya's poor implementation of the fairly comprehensive environmental legislation and further stated that it faced a number of problems.[56]

This clearly shows that the laws are either inadequate or that the present laws are poorly implemented in ensuring compliance of the industries that discharge effluents into water resources. It also depicts the need for alternative measures as well as discharging standards that can ensure compliance by the industries.

1.3 HYPOTHESIS

1. There is need for strict measures in order to ensure the implementation as well as the compliance of the set regulations and prohibitions, in the deterrence and reduction of effluent discharge and water pollution in Kenya.[57]

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[51]Kaluli *et al,* 'Towards a National Policy on Wastewater Reuse in Kenya' 122.

[52]Kaluli *et al,* 'Towards a National Policy on Wastewater Reuse in Kenya' 122.

[53]Onjala O J, 'Managing water scarcity in Kenya: Industrial response to tariffs and regulatory enforcement' Unpublished, Roskilde University, Denmark, 2002, 23.

[54]Onjala O J, 'Managing water scarcity in Kenya: Industrial response to tariffs and regulatory enforcement' 31.

[55]Onjala O J, 'Managing water scarcity in Kenya: Industrial response to tariffs and regulatory enforcement' 31.

[56]Barczewski B, 'How well do environmental regulations work in Kenya: A case study of the Thika highway improvement project' Columbia University, 2013, 2-< http://csud.ei.columbia.edu/files/2013/06/How-Well-Do-Environmental-Regulations-Work-in-Kenya.pdf> on 9 February 2017.

[57]Onjala O J, 'Managing water scarcity in Kenya: Industrial response to tariffs and regulatory enforcement' 31.

2. The continuous discharge of effluents by industries has subsequently, adversely affected the water quality and quantity in Kenya.[58]
3. Industries evade complying with these regulations mainly because the water treatment systems, that treat the effluents before its discharge, are expensive to maintain.[59]

1.4 RESEARCH QUESTIONS

In pursuance of determining the effectiveness of the laws regulating the discharge of industrial effluents into water resources in Kenya, this paper shall seek to answer the following questions;

1. Whether the regulations set out are efficient and adequate in preventing water pollution caused by the discharge of industrial effluents
2. Whether the available laws are adequate in ensuring implementation and compliance of the set regulations
3. What are the solutions to the poor implementation of these laws?

1.5 LIMITATIONS OF THE STUDY

This research will be limited to two Kenyan statutes, the Environmental Management and Co-ordination Act[60] and its subsidiary legislations as well the Water Act of 2016.[61]
It will also focus on the lead poisoning of the residents of Owino Uhuru slums in Mombasa, Kenya as a case study and the jurisdiction will be limited to the Kenyan courts.

1.6 CHAPTER BREAKDOWN

1. The first chapter will involve the introduction and background of the problem as well as the purpose for the specific study. It will specifically set out the statement of the problem, the justification for the study, the hypothesis and assumptions as well as the limitations.

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[58]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-<http://www.unep.org/PDF/Clearing_the_Waters.pdf> on 31 January 2017.

[59]Opaa B, Omondi G 'Wastewater Production, treatment and use in Kenya' 2012-<http://www.ais.unwater.org/ais/pluginfile.php/231/mod_page/content/188/kenya_country_presentations_third_regional_workshop.pdf on 9 February 2017.

[60]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[61]*Water Act* (Act No. 43 of 2016).

2. The second chapter will be on the theoretical framework and the preferred methodology in regards to the plan set out in acquiring the required information. It will also involve the discussion of the case study on the lead poisoning of residents of Owino Uhuru slums in Mombasa by EPZ Ltd.
3. The third chapter will be on the legal framework and will analyse the statutes that are relevant in effluent discharge by industries, that is, the Environmental Management and Co-ordination Act,[62] its subsidiary legislations and the Water Act of 2016.[63]
4. The fourth chapter will be a comparative study with Malaysia's legal system and will focus on its paramount measures that ensure compliance from the industries.
5. The fifth chapter will be on the conclusions and recommendations based on the findings of the research and will basically rely on the literature review as well as the theoretical framework, and will also include a list of the references and appendices obtained from the order of the text.

[62] *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[63] *Water Act* (Act No. 43 of 2016).

CHAPTER TWO

Introduction

This chapter will focus on and evaluate the Utilitarianism's principle of utility on the greatest good for the greatest number and how this theory may be adequate or inadequate in addressing matters regarding pollution and the protection of the environment as well as the members of society.[64]

Further, this chapter will interrogate the Kenyan legislative framework in view of these theories in determining whether the framework is adequate, in addressing and regulating the discharge of effluents into water by industries, and consequently in ensuring compliance in its quest to prevent water pollution.

The previous chapter introduces the problem statement of the research study, which is the adequacy of the laws that have been established to regulate the discharge of effluents into water by industries as well as, the regulation and prevention of water pollution in this light. It also introduces the problem where, there seems to be existence of adequate regulations providing for the prohibition and regulation of effluent discharge by industries, but a lack of compliance from the parties involved and particularly in this case, industries.[65] There is also a discussion on the background of the problem within the Kenyan context with reference to some of the water challenges that the country has faced, and most particularly how discharge of effluents by industries has been a contributing factor to these challenges.[66]

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[64]Leisos V R, 'Utilitarianism and Environment' 20 February 2014 -<https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.

[65]Wabai Y, '[Ambassador Report] Water Pollution in Kenya' Tunza Eco-Generation, 4 April 2017-< http://tunza.eco-generation.org/resourcesView.jsp?boardID=ambassadorReport&viewID=42780&searchType=&searchName=&pageNumber=2> on 28 July 2017.

[66]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-< http://wedocs.unep.org/bitstream/handle/20.500.11822/7906/-Clearing%20the%20Waters_%20A%20focus%20on%20Water%20Quality%20Solutions%20-2010Clearing_the_Waters.pdf?sequence=3&isAllowed=y> on 28 July 2017.

Definition of Terms

An industry can be defined as the companies and activities that are involved in the production of goods for sale especially in a factory.[67]

The Environmental Management and Co-ordination Act[68] (EMCA) defines effluents as any waste whether gaseous, liquid or fluid, domestic, agricultural or industrial, treated or untreated, that is discharged directly or indirectly into the aquatic environment.[69]

Further, the Act[70] defines pollution as any direct or indirect alteration of the physical, thermal, chemical, biological, or radio-active properties of any part of the environment by discharging, emitting, or depositing wastes so as to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety or welfare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to cause contravention of any condition, limitation, or restriction.[71] Water pollution would therefore be defined as the contamination of water in any of the ways stated above.

The Environmental Management and Co-ordination (Water Quality) Regulations[72] prohibits any act that may cause water pollution directly or indirectly,[73] as well as the depositing of any wastes whether gaseous, liquid or solid in or near the water resources.[74]

The water quality regulations[75] further prohibit the discharge of effluents into the aquatic environment without a valid EDL[76] and consequently, the effluents discharged into the aquatic environment should be in compliance with the Third Schedule of the regulations.[77] Other than

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[67]-https://dictionary.cambridge.org/dictionary/english/industry on 2 February 2018.
[68]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[69]Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[70]*Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[71]Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[72]*Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).
[73]Section 4 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).
[74]Section 4 (2), *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).
[75]*Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).
[76]Section 6 (a), *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).
[77]Section 11, *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).

obtaining a valid EDL, no person is allowed to carry out an activity near a water source that might affect the quality and quantity of water, without an EIAL.[78]

In addition, any person who wants to use water for any industrial undertakings must comply with the industrial standards set out by the lead agency, and this lead agency will take measures in order to ensure compliance.[79]

2.1 Utilitarianism

The Principle of utility under the Utilitarianism theory has been relied on in drafting environmental policies and addressing issues of industrial pollution and the effects of pollutants such as effluents on the surrounding area, and most importantly, on the members of society.[80]

The principle of utility was formulated by Jeremy Bentham who was one of the key philosophers of Utilitarianism. In this principle, he defined utility as the property in an entity which tends to produce pleasure or gain.[81] Therefore, this principle is concerned with the pleasure of the majority, that is, the greatest good for the greatest number, and where there is pain, the amount of pleasure should outweigh the amount of pain. An action would therefore be right if it fulfilled this principle.[82]

Regarding actions that result in pollution and considering that most times the cost of eliminating pollution is higher than the benefits attained,[83] the principle of utility is used to consider a wide scope of people that are affected by the particular actions and subsequently, measures the advantages accrued against the adverse effects such as pollution as well as the long term and short term effects, and considers whether the action would be right or wrong.[84] Being a consequentialist and teleological theory, Utilitarianism considers the morality of an action based on the

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[78]Section 6 (b), *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).

[79]Section 10, *Environmental Management and Co-ordination (Water Quality) Regulations* (No. 121 of 2006).

[80] Velasquez I, *Business Ethics: Concepts and Cases*, 7th ed, Prentice Hall, Englewood Cliffs, 1982.

[81]Crimmins J E, 'Jeremy Bentham' The Stanford Encyclopaedia of Philosophy, 21 June 2017
-< https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=bentham> on 14 September 2017.

[82]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-< https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.

[83]Velasquez I, *Business Ethics: Concepts and Cases*.

[84]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-< https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.

consequences the action results in, [85]and in this case, the consequences of pollution whether positive or adverse are what matters.[86] Therefore, an action is right if it results in happiness and an action is wrong if it results in pain.[87]

Bentham's Utilitarian viewpoint can be used to advance arguments on environmental policies that involve protection from the government.[88] This is because ultimately the government's obligation is to promote the greatest good for the greatest number which entails protecting its citizens from harm, and this includes harm such as pollution.[89] Thus, the government should always have the welfare of its citizens at the forefront while regarding commerce or innovation as a secondary matter.[90]

In addition, maximizing of benefits should be left to individuals and industries as long as they do not cause harm to each other or the environment, and therefore, the aforementioned protective policies should ensure that the government intervenes to protect the society.[91] This means that the government should focus on the risks involving the wellbeing of the society rather than the potential benefits of a polluting technology. It should not consider the profits that may be accrued by promoting or ignoring pollution, but should rather focus on the adverse effects that the pollutants would have on the society.[92]

Utilitarianism has also been used to argue that environmental problems are actually market defects, and that pollution should be avoided because it causes harm to the welfare of the society.[93] An example of private and social costs could be used to explain this market defect. Private costs are the actual costs that an entity incurs in producing a commodity, while the social costs are the costs

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[85]Sinnott A, 'Consequentialism' The Stanford Encyclopedia of Philosophy, 21 September 2017 -< https://plato.stanford.edu/archives/win2015/entries/consequentialism/> on 29 November 2017.

[86]Kaplowitz M D, *Property Rights, Economics and the Environment*, 1st ed, Routledge, London, 2004, 217.

[87]Sinnott A, 'Consequentialism' The Stanford Encyclopedia of Philosophy, 21 September 2017 -< https://plato.stanford.edu/archives/win2015/entries/consequentialism/> on 29 November 2017.

[88]Moore C F, *Children and Pollution: Why Scientists Disagree,* 1st ed, Oxford University Press, USA, 2009, 229.

[89]Moore C F, *Children and Pollution: Why Scientists Disagree,* 229.

[90]Moore C F, *Children and Pollution: Why Scientists Disagree,* 229.

[91]Moore C F, *Children and Pollution: Why Scientists Disagree,* 229.

[92]Moore C F, *Children and Pollution: Why Scientists Disagree,* 229.

[93]Velasquez I, *Business Ethics: Concepts and Cases.*

that arise in the production of commodities, and which the entity fails to pay.[94] A good example of social costs in this scenario would be pollution costs.[95]

The separation of social and private costs is problematic because this separation means that all the costs are not being reflected on the total cost of a commodity, which therefore means that resources are not being allocated efficiently, leading to the declination of the society's welfare.[96] Utilitarianism thus requires that the entity internalizes the costs, that is, considers and takes into account all the costs including the costs of pollution to fix this market defect.[97]

In addition, the internalization of these pollution costs would be in line with distributive and compensative justice, because the entity will rectify the pollution and consequently compensate those who have been affected by it. It also reverses the net flow of benefits from the rich to the poor since most of the times, the poor in the society bear the cost of pollution.[98]This takes a humanitarian approach by weighing the individual liberty as well as the economic impacts which is also important.[99]

From this premise, two requirements can be determined, firstly that, the costs of pollution should be assumed by those who cause pollution as well as those who benefit from the pollution.[100] Secondly, the benefits arising from pollution control should otherwise flow to those who bear the external costs of pollution.[101]

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[94]Velasquez I, *Business Ethics: Concepts and Cases.*
[95]Velasquez I, *Business Ethics: Concepts and Cases.*
[96]Velasquez I, *Business Ethics: Concepts and Cases.*
[97]Velasquez I, *Business Ethics: Concepts and Cases.*
[98]Velasquez I, *Business Ethics: Concepts and Cases.*
[99]Hendricksen A, 'An Argument for Environmental Utilitarianism: EPA Regulations and Their Negative Effects on Individual Liberty and Economic Freedom' William Jessup University, 15 April 2016 -<http://webcache.googleusercontent.com/search?q=cache:mGiQCWCN7v8J:my.jessup.edu/publicpolicy/wp-content/uploads/sites/39/2016/03/Ali-Hendricksen-Senior-Sem.pdf+&cd=1&hl=en&ct=clnk&gl=ke> on 29 November 2017.
[100]Velasquez I, *Business Ethics: Concepts and Cases.*
[101]Velasquez I, *Business Ethics: Concepts and Cases.*

Utilitarianism however, fails to determine who the majority are in a society[102]and further, it promotes elitism because it requires the smaller communities to bear the burden of pollution in the society.[103]

It also fails to address the need to consider necessity rather than pleasure where need be.[104] Therefore, this is never in favour of the environment, this is because, more often than not, when the protection of the environment threatens the economic or social pleasure of the majority, it will be disregarded.[105]

With regards to utilitarianism that focuses on balancing the costs and the benefits of pollution, Sandel advances a principled approach which views pollution as a violation of the rights of person and property, and which should be prohibited in order to protect people from assault.[106] He states that this should be constant, whether or not the industries causing pollution provide benefits to the society that outweigh the costs, and this includes the costs of pollution that was produced by the industries.[107]

He relies on the deontological framework which appeals to general principles, and in this case, pollution would be wrong as a matter of principle because it involves imposing effluents on others and this consists of coercion.[108] As opposed to utilitarianism, which only considers the consequences of pollution in determining whether pollution is right or wrong.[109]

Other scholars such as Peter Singer and Tom Regan have also criticized this theory in that it does not consider the interests of non-human species and that the theory is anthropocentric, and does

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[102]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-< https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.
[103]Stark J, 'Utilitarian Environmentalism?' Ethics and the Environment (with some economics and politics thrown in) 14 June 2010-< http://enviroethics.blogspot.co.ke/2010/06/utilitarian-environmentalism.html> on 28 August 2017.
[104]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-< https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.
[105]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-< https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.
[106]Kaplowitz M D, *Property Rights, Economics and the Environment*, 217.
[107]Kaplowitz M D, *Property Rights, Economics and the Environment*, 217.
[108]Kaplowitz M D, *Property Rights, Economics and the Environment*, 217.
[109]Kaplowitz M D, *Property Rights, Economics and the Environment*, 217.

not consider the intrinsic value of non-humans which ends up justifying environmental destructive practices such as pollution based on the positive effect it would have on humans.[110]

It has also been argued that the utilitarian justification of environmental policy regularly assumes that value can be reduced to a quantifiable amount.[111] However in certain cases it is difficult to quantify certain values such as health and human life and consequently the quantification of these values in monetary terms may undermine the value of life when they are considered from an intrinsic value viewpoint.[112]

In addition, this theory fails to address or place a value on the impact of environmental problems on future generations, and this becomes more challenging when the impacts are long lasting and even more challenging when they are applied to sustainable development or environmental policies.[113]

Brian Wollf nevertheless, advocates for Utilitarianism as a good environmental ethic, stating that as much as it has been applied in a way that only focuses on humans, there can be a utilitarian ethic that acknowledges the pain and pleasure of *all* beings whether human or not.[114] He further states that scholars that criticize utilitarianism for not being holistic, should understand that the theory is individualistic because man is the only being that can experience pain and pleasure.[115]

Wolff also argues that by relying on the intrinsic value of nature as well as the assignment of rights to it, has created a burden of proof for the environmental ethicists to actually prove that these rights exist and that they are identifiable. Failure to prove this has consequently led to the difficulty of convincing policy makers that non-humans should be subjects of moral concern.[116]

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[110]Wolff B, 'Environmental Studies and Utilitarian Ethics' 34(2), *University of Minnesota Conservation Biology Program,* 2008.

[111]Brown D, Lemons J *Sustainable Development: Science, Ethics and Public Policy: The role of economics in sustainable development and environmental protection*, 1st ed, Kluwer Academic Publishers, Dordrecht, 1995, 59.

[112]Brown D, Lemons J *Sustainable Development: Science, Ethics and Public Policy: The role of economics in sustainable development and environmental protection*, 59.

[113]Brown D, Lemons J *Sustainable Development: Science, Ethics and Public Policy: The role of economics in sustainable development and environmental protection*, 59-60.

[114]Wolff B, 'Environmental Studies and Utilitarian Ethics' 2008.

[115]Wolff B, 'Environmental Studies and Utilitarian Ethics' 2008.

[116]Wolff B, 'Environmental Studies and Utilitarian Ethics' 2008.

In conclusion, the Kenyan legal framework addressing water pollution through discharge of effluents by industries, should encompass provisions that require these industries to take accountability for any effluents they produce and to consequently compensate anyone harmed by this pollution.[117]In addition, the framework should ensure that the government plays a key role in the protection of the members of society against this pollution through effluent discharge, and should have their interests in mind above any other commercial concerns.[118]

[117]Velasquez I, *Business Ethics: Concepts and Cases*.

[118]Moore C F, *Children and Pollution: Why Scientists Disagree*, 229.

CHAPTER THREE: LEGAL FRAMEWORK

Introduction

This chapter will be involved with determining and evaluating whether Kenya's legal framework is efficient and adequate in the prevention of water pollution caused by discharge of industrial effluents. Further, the provisions will be evaluated in determining their adequacy in ensuring the implementation and compliance of the set regulations, and will also determine what the causes of the poor implementation may be.

It will also encompass the answering of the research questions through the provisions set in the legal framework that address effluent discharge by industries in Kenya. It will also include the Owino Uhuru case study which will be the main case study being relied on in answering these research questions.

Chapter 2 discussed the Utilitarianism theory and more particularly the principle of utility on the greatest good for the greatest number.[119] It also discussed the problem of effluent discharge by industries as a harmful effect to the communities and also as a market defect that the industries are encouraged to internalize in their overall costs.[120] Furthermore, the chapter discussed some scholars that have criticized the theory in regards to pollution and its lack of inclusion for the environment as an end in itself,[121] its failure to specifically determine who the majority are in a community as well as its inadequacy in addressing the value of life and health in matters involving environmental pollution.[122]

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[119]Leisos V R, 'Utilitarianism and Environment', 20 February 2014
-<https://vleiso12.wordpress.com/2014/02/20/utilitarianism-and-environment/> on 28 August 2017.

[120]Velasquez I, *Business Ethics: Concepts and Cases*.

[121]Wolff B, 'Environmental Studies and Utilitarian Ethics'.2008.

[122]Brown D, Lemons J *Sustainable Development: Science, Ethics and Public Policy: The role of economics in sustainable development and environmental protection*, 2001.

3.1 Constitution of Kenya

In addressing the question of whether Kenya's legal framework charged with the regulation of discharge of effluents by industries, is adequate and efficient in preventing water pollution caused by industrial effluent discharge, I will first discuss the environmental protection and conservation provisions enshrined under the Constitution of Kenya 2010.[123]

In ensuring the protection of the society from the adverse effects of water pollution caused by discharge of industrial effluents, the Constitution provides that everyone has the right to a clean and healthy environment which would comprise a clean water resource free from this pollution. This provision also includes the right to have the environment protected for the current and future generations through legislation and other measures.[124] Consequently, with the mandate given to the parliament under this constitution,[125] several legislations have been formulated to address the discharge of industrial effluents as will be discussed below.

Article 69 provides for the general protection of the environment by creating obligations for the state in respect of the environment, where it is required to ensure the sustainable utilisation and conservation as well as the sustainable management and exploitation of the environment and the natural resources.[126] Therefore, the government is expected to safeguard the environment from certain activities, including industrial activities, which may lead to the over-exploitation, utilisation or pollution of resources such as water.

Further, the protection of the environment is safeguarded from pollution caused by industrial effluent discharge, as provided under the provision requiring the state to eradicate any activities or processes that are most likely to threaten the environment[127] which would include industrial activities that lead to the discharge of effluents which cause adverse effects to the environment and

[123] *Constitution of Kenya* (2010).
[124] Article 42, *Constitution of Kenya* (2010).
[125] Article 94 (5), *Constitution of Kenya* (2010).
[126] Article 69(1) (a), *Constitution of Kenya* (2010).
[127] Article 69(1) (g), *Constitution of Kenya* (2010).

the people around the environment.[128] The state is also obligated to institute systems of environmental impact assessments, environmental auditing and monitoring[129] which also ensure the protection of the environment from water pollution caused by industrial effluent discharge, through assessing certain projects before their establishment, as well as monitoring and auditing their compliance to the regulations set after their approval.[130]

In addition, this provision ensures that the public is engaged in the protection of the environment, by requiring that the state encourages public participation in the management, conservation and most importantly the protection of the environment.[131] Involving the public in the decision making of activities affecting the environment is important as it ensures facilitation of proper enforcement and implementation, [132]and this guarantees that industries comply with all the set regulations regarding the discharge of effluents because the public, act as a type of regulatory body that promotes public interest, and who may accept or forbid the establishment of an industry in a residential area.

The state is also obligated to ensure that both the environment and natural resources, which includes water resources, are utilised in a way that benefits the people of Kenya[133] and consequently, everyone has a duty to cooperate with the state in protecting and conserving the environment and to ensure the ecological sustainable development and use of natural resources.[134] Thus, an industry which discharges effluents into water resources to the detriment of the society should be prohibited and regulated by the government and in addition, industries should liaise with the government in order to ensure that they comply with the regulations set for the better protection and conservation of the environment.

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[128]Palaniappan M, Gleick H P, Allen L, Cohen J M, Christian-Smith J and Smith C, 'Clearing the waters; A focus on water quality solutions' Pacific Institute, 2010-<http://wedocs.unep.org/bitstream/handle/20.500.11822/7906/-Clearing%20the%20Waters_%20A%20focus%20on%20Water%20Quality%20Solutions%20-2010Clearing_the_Waters.pdf?sequence=3&isAllowed=y> on 28 July 2017.

[129]Article 69(1) (f), *Constitution of Kenya* (2010).

[130]-<http://education.seattlepi.com/importance-eia-environmental-protection-3839.html> on 18 December 2017.

[131]Article 69(1) (d), *Constitution of Kenya* (2010).

[132]Chai T, 'The Importance of Public Participation' Environmental Justice and Sustainability Clinic, 1 April 2016-<http://ejsclinic.info.yorku.ca/2016/04/the-importance-of-public-participation/> on 18 December 2017.

[133]Article 69(1) (h), *Constitution of Kenya* (2010).

[134]Article 69(2), *Constitution of Kenya* (2010).

3.2 Acts of Parliament

3.2.1 Environmental Management and Co-ordination Act of 1999

Environmental Management and Coordination Act[135] (EMCA) of 1999 is a major legislation that gives provisions on the general protection of the environment. It defines effluents as any waste whether gaseous, liquid or fluid, domestic, agricultural or *industrial*, treated or untreated that is discharged directly or indirectly into the aquatic environment.[136] The Act further defines pollution as any direct or indirect alteration of the physical, thermal, chemical, biological, or radio-active properties of any part of the environment by discharging, emitting, or depositing wastes so as to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety or welfare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to cause contravention of any condition, limitation, or restriction.[137] Water pollution would therefore be defined as the contamination of water in any of the ways stated above.

EMCA prohibits water pollution and considers it an offence as under Section 72, where it states that any person who applies or discharges any toxic, poisonous, noxious or obstructing matter, radioactive waste or any other pollutants into the aquatic environment that is contrary to the established water pollution control standards is guilty of an offence.[138] This prohibition would also extend to industries which discharge effluents into its surrounding water resources, as effluents are considered waste pollutants as under section 2.

It further relies on the polluter pays principle and provides that the person guilty of the above offence will be liable to pay the cost of the removal of the pollutant as well as the restoration of the damaged environment.[139] The polluter will also pay costs of reparation, restitution, restoration or compensation to anyone who has been adversely affected by the pollution.[140] As previously discussed in Chapter 2 regarding the Utilitarianism theory, it is crucial for industries to internalize their social costs, that is, pollution costs which is what this provision promotes. The internalization

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[135] *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[136] Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[137] Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[138] Section 72 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[139] Section 72 (2) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[140] Section 72 (2) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

of this pollution costs promotes distributive and compensative justice because ultimately the industries will rectify the pollution and compensate any individual that was harmed by the effects of pollution.[141]

The industries should also ensure that they establish a plant that treats the effluents before its discharge.[142] This will consequently reduce the risk of water pollution through effluents greatly as it provides an end of pipe technique which is less expensive and which treats the effluents before its discharge into the water resources.[143]

The Act also requires that industries should obtain a licence that permits the discharge of effluents,[144] from the entity charged with the supervision and operation of the particular sewerage system that they wish to discharge the effluents.[145] The Act provides guidelines that the National Environment Management Authority(NEMA) should consider and take, in issuing out of EDLs, and these include: Obtaining comments from the persons, local authorities and organizations that are concerned with the activity,[146] consideration of the possible effects of effluents to be discharged on the quality of the affected water source and course,[147] consideration of the already existing licences affecting the concerned water course and source,[148] take into consideration the water requirements of riparian residents, ecosystems, human settlements and agricultural schemes that depend on the water source.[149]

NEMA is also required to maintain a register of all EDLs issued[150] and may at any time in writing cancel the licences issued where the licensee violates any of these provisions,[151] fails to comply with the conditions stated in the licence[152] or where it is considered to be the best interest of the

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[141]Velasquez I, *Business Ethics: Concepts and Cases*.
[142]Section 74 (2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[143]-<https://www.eea.europa.eu/help/glossary/gemet-environmental-thesaurus/end-of-pipe-technology> on 21 January 2018.
[144]Section 75 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[145]Section 74 (1), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[146]Section 75 (4) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[147]Section 75 (4) (c), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[148]Section 75 (4) (d), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[149]Section 75 (4) (e), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[150]Section 77, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[151]Section 76 (1) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[152]Section 76 (1) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

public or the environment.[153] This mode of licencing enables the state to assess every industry or project that wishes to discharge effluents and further enables it to keep track of the amount, quality and quantity of effluents that they discharge once they have been licenced and to consequently revoke the licence where there is lack of compliance.

The second question on whether this legal framework is adequate in ensuring compliance by industries with the set regulations, will be addressed in the provision under EMCA that provides for environmental auditing and monitoring under Part VII. The authorities or its designated agents are required to carry out audits for all activities that are likely to cause adverse effects to the environment[154] and this would include the discharge of effluents by industries into nearby water resources. They are also required to monitor the operation of any industry or activity in order to determine the immediate or long term effects they would have on the environment,[155] and may enter any premises for the purposes of monitoring the effects the activities of the industry has on the environment.[156]The inspector appointed under the Act may enter any premises or land, to ensure that these activities are in conformity with the statements provided for in the environmental impact assessment report issued in respect of that particular land or premises.[157] This is another technique that ensures compliance by industries. The regular monitoring and auditing of the industrial activities that lead to effluent discharge, should ensure that they are compliant.

The Act further confers duties to the owners of industries that discharge effluents by stating that they need to make annual reports regarding the industry. and how far it conforms to the statements of the environmental impact assessment report.[158] The owners are also required to carry out reasonable measures to mitigate any other adverse effects that may not have been provided for in the report.[159] Self-regulation also ensures the accountability of industries and further ensures that they are responsible and compliant with the set discharge standards in their activities.

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[153]Section 76 (1) (c), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[154]Section 68 (1), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[155]Section 69 (1) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[156]Section 69 (2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[157]Section 68 (2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[158]Section 68 (3), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[159]Section 68 (4), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

EMCA also gives provisions on environmental impact assessments (EIA) which are to be undertaken before the erection of any industry, in order to determine what its potential adverse effects on the environment and the surrounding residents would be and the same is provided for in the Environmental (Impact Assessment and Audit) Regulations. Section 58 of the EMCA provides for the application of an EIAL and it requires that the proponent of any project ensures that they submit a project report to NEMA before they can commence, finance, proceed with, carry out, conduct or execute any undertaking that has been specified in the Second Schedule of this Act, and this includes projects from processing and manufacturing industries.[160] This enables assessment by the government and the public prior to their establishment.

The proponent of any project specified in the Second Schedule of this Act, will also be required to undertake or cause to be undertaken a full EIA study and subsequently issue an EIA report prior to being granted a licence,[161] which shall be in accordance with the EIA regulations, guidelines and procedure.[162]The studies and the drafting of the reports will only be undertaken by individual experts or firm of experts that have been authorised by NEMA, and accordingly, NEMA shall maintain a register of all the individual experts and firm of experts that are authorised to carry out these activities, and it shall be a public document.[163] By relying on professionals, this ensures that the study report will be carried out in accordance with the set regulations.

After receiving the study report, NEMA is expected to publish a notice of the project in the Gazette in at least two newspapers and circulating the area where the proposed project is proposed to be and over the radio[164]in order to raise awareness to the residents and to obtain their comments. The notice must contain the following; a summary explanation of the project,[165] the location where the project is to be executed,[166] where the study report may be reviewed, evaluated or inspected[167] and a time period of not exceeding sixty days for the submission of oral or written comments regarding

[160]Section 58 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[161]Section 58 (2), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[162]Section 58 (7), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[163]Section 58 (5), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[164]Section 59 (1), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[165]Section 59 (1) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[166]Section 59 (1) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[167]Section 59 (1) (c), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

the study report.[168] This informs the public of the proposed project and enables them to be well equipped in giving their comments of approval or refusal.

NEMA can also require the proponents of the projects to carry out further evaluation or EIA studies, reviews or the submission of further information at their own expense, in order to ensure accuracy of the study reports.[169] Afterwards, once NEMA is satisfied with the EIA study, review and evaluation report, they may issue an EIAL with certain terms and conditions as they may consider necessary to facilitate sustainable development as well as sound environmental management.[170]

In addition, where the proponent was issued an EIAL, NEMA may direct the proponent to submit a fresh EIA study, evaluation, or review report[171] in the following instances; where there is substantial change or modification to the project or the manner in which it is being operated,[172] where the project poses a threat to the environment which could not be reasonably foreseen in the earlier studies, evaluations or reviews[173], where it is believed that that the information submitted by the proponent during the initial study report was false, inaccurate or was intended to mislead.[174] In this case, where the Authority has ordered for a fresh EIA or for new information about the project, the Authority may revoke, cancel or suspend any EIAL that has been issued.[175] This ensures that the government continuously monitors the activities of the industries to determine their compliance with the set regulations.

EIAs are therefore crucial as they enable the government to examine and assess the proposed activities of industries or projects prior to their establishment, which subsequently enables them in determining whether they should approve or decline their applications in accordance with the set regulations. They also ensure that the public is involved and well versed in the proposed activities of the project or industry especially in cases where the project or industry is close to residential

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[168]Section 59 (1) (d), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[169]Section 62, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[170]Section 63, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[171]Section 64 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[172]Section 64 (1) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[173]Section 64 (1) (b), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[174]Section 64 (1) (c), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[175]Section 64 (3), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).

areas and may have adverse effects on them. They also ensure that the industries are compliant with the EIAL requirements even after their establishment.

Should the licensee violate any of these provisions, the Authority may revoke, cancel[176] or suspend the EIAL for not more than twenty four months.[177] In this case, the proponents can no longer proceed with the project until NEMA grants him/her another licence.[178]

3.2.2 *Environmental Management and Co-ordination (Water Quality) Regulations* of 2006

The Water Quality regulations of 2006, which applies to water used for all purposes inclusive of industrial use,[179] provides that any act that may cause water pollution directly or indirectly, immediately or subsequently, is prohibited.[180] This would therefore include effluent discharge from industries. In addition, the regulations prevent water pollution through effluent discharge by stating that it prohibits anyone from throwing, depositing or causing to flow into or near a water resource any liquid, solid or gaseous substance so as to cause pollution.[181] Moreover, there is prohibition on the discharge or application, and permitting of the discharge or application of any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants, into the aquatic environment unless such discharge or pollutant complies with the standards set out in the Third Schedule of these Regulations.[182] The prohibition of all these wastes and pollutants guarantees the protection of water resources from any form of pollution by industries, including through the discharge of effluents.

In order to legally discharge effluents into the aquatic environment, industries would be required to obtain two valid licenses, namely an effluent discharge license[183] and an environmental impact

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[176]Section 67 (1) (a), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[177]Section 67 (1) (b), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[178]Section 67 (2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[179]Section 2, *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[180]Section 4 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[181]Section 4 (2), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[182]Section 11, *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[183]Section 6 (a), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

assessment license.[184] The regulations provide for the detailed application of an EDL[185] and prohibit effluent discharge into the aquatic environment without possession of a valid EDL.[186] Consequently, the effluents discharged into the aquatic environment by those in possession of a valid EDL, should be in compliance with the Third Schedule of the regulations.[187]Other than obtaining a valid licence, no one is allowed to carry out an activity near a water source that might have a harmful effect on the quality and quantity of water, without an EIAL issued in accordance with the Act.[188] These Water Quality regulations which are a subsidiary legislation of the EMCA also use the licencing technique as a form of monitoring, recording and assessing all industries that discharge effluents and consequently ensures compliance by the industries which discharge effluents into water resources.

Part III of the Water Quality regulations gives provisions on water used for the purposes of industrial activities as well as the discharge of effluents.[189]This part provides that industries are not allowed to use water for an industrial activity unless, they have complied with the set standards established by the competent lead agency.[190] EMCA defines a lead agency as "any Government ministry, department, parastatal, state corporation or local authority, in which, any law vests functions of control or management or any element of the environment or natural resources."[191]

The Water Regulations also requires the proponents to rely on the monitoring guide for discharge of effluents into the environment as set out in the Fourth schedule or as NEMA may recommend.[192]In order to ensure compliance with the standards by the owner or the operator, the lead agencies as well as NEMA are required to consult with each other.[193] This ensures that the industries can self-regulate and be accountable for their activities as well as ensure compliance by providing them with standards that they should strive to maintain.

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[184]Section 6 (b), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[185]Section 16, *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[186]Section 6 (a), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[187]Section 11, *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[188]Section 6 (b), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[189]*Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[190]Section 10 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[191]Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[192]Section 12 (2), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[193]Section 10 (2), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

Further, in ensuring compliance, the regulations provide that there should be regular monitoring carried out through quarterly records.[194] This is to be guaranteed by anyone who has an EDL, and they should consider the quality as well as the quantity of the effluent discharged during monitoring, which is to be in accordance with the methods and procedures of sample analysis as recommended by the Authority.[195] Regular monitoring is also another technique relied on by these regulations which promotes compliance with the industries.

3.2.3 Water Act of 2016

The Water Act of 2016 prohibits effluent discharge by stating that one cannot "throw, convey, cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive matter or thing into or near to any water resource in such manner as to cause, or be likely to cause, pollution of the water resource" without authority conferred within the Act.[196] Anyone who violates this provision is considered to have committed an offence.[197] Industries are therefore prohibited from causing water pollution through the discharge of effluents into water resources.

3.2.4 The Environmental (Impact Assessment and Audit) Regulations of 2003

The Environmental (Impact Assessment and Audit) Regulations of 2003, also regulates water pollution through effluent discharge by industries as it provides for the guidelines that should be adhered to, in the carrying out of EIAs before a project or major activity that would have any adverse impact on the environment.[198] An EIA under these regulations is defined as a systematic examination conducted to determine whether a project, activity or programme will have any adverse effects on the environment.[199]

The regulations provide that EIA studies should be carried out in accordance with the set general EIA guidelines as well as sector EIA guidelines that have been set out in the Third Schedule of the

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[194]Section 14 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[195]Section 14 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).
[196]Section 143, *Water Act* (Act No. 43 of 2016).
[197]Section 143, *Water Act* (Act No. 43 of 2016).
[198]*Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[199]Section 2, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).

Regulations.[200] These sector guidelines are to be established by lead agencies in consultation with the Authority.[201] Through these guidelines, there is a standardization of how EIAs should be carried out for these proposed projects.

In addition, these regulations require that the EIA study take into consideration the environmental, social, economic, cultural as well as legal matters.[202] This study should not only anticipate the environmental impacts of the particular project and the scale of these impacts,[203] but it should also provide for alternatives to the said proposed project.[204] This consequently anticipates the effects of the project or industry and provides solutions in advance.

The study should also propose mitigation measures for the proposed project during or after its implementation[205] and consequently, an environmental management plan containing monitoring and evaluation mechanisms, needs to be formulated to ensure compliance and it should also contain the cost of the mitigation measures and the time frame within which these measures should be implemented.[206] These mitigation measures thus reduce the risks of pollution that may occur during the operation of the industry's activities.

Public participation is also a requirement during the EIA process for people who may be adversely affected by the project.[207] It requires that the proponent of the project create awareness to the public, of the project and its suggested impacts through different ways such as the posting of posters in a public vicinity on the proposed site of the project,[208] or posting on the newspapers that have a national circulation for two consecutive weeks[209] as well as announcing on the radio through local and national language that has a nationwide circulation for at least once a week in two consecutive weeks.[210]

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[200]Section 12 (1), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[201]Section 12 (2), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[202]Section 16, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[203]Section 16 (a), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[204]Section 16 (b), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[205]Section 16 (c), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[206]Section 16 (d), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[207]Section 17 (1), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[208]Section 17 (2) (a) (i), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[209]Section 17(2) (a) (ii), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[210]Section 17 (2) (a) (iii), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).

The proponent is also required to carry out at least three meetings with members of the public who are affected by the project in order to explain the proposed project, and its effects and to consequently receive their comments in oral or written form.[211]

Upon receiving either the oral or written comments, NEMA is required to hold a public hearing,[212] and to also ensure that the public is given sufficient notice of the hearing[213] which is to be held in a venue that is convenient and accessible to members of the public who may be affected by the project.[214] After the hearing, the presiding officer is then required to compile a report of the views presented at the hearing and afterwards submit it to the Director General.[215] As discussed above, public participation is crucial as it ensures that the public is informed on any adverse effects that may be caused as a result of the industry's establishment, and this enables them in making a decision regarding the establishment.

Thereafter, once NEMA receives the report, it is meant to make a decision within three months of receiving the report and to give reasons thereof.[216] While making this decision, NEMA is supposed to take certain things into account, such as the validity of the EIA study report with emphasis on the economic, social and cultural impacts,[217] the comments of the lead agency as well as those of any interested parties,[218] the report compiled by the presiding officer during the public hearing,[219] as well as any other factors that may be crucial to the implementation of the project.[220]This creates an opportunity for NEMA to fully assess the effects that the proposed activities would have on the environment and the public.

Finally, once the report has been approved in accordance with the above regulations, NEMA may then issue out an EIAL as set out in the First schedule of these regulations.[221]

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[211]Section 17 (2) (d), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[212]Section 22, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[213]Section 22 (3), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[214]Section 22 (4), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[215]Section 22 (7), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[216]Section 23, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[217]Section 23 (3) (a), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[218]Section 23 (3) (b), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[219]Section 23 (3) (c), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[220]Section 23 (3) (d), *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).
[221]Section 24, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).z

3.3 Institutional Framework

3.3.1 National Environment Management Authority

EMCA establishes the National Environment Management Authority (NEMA)[222] which is a key institution charged with the general supervision and co-ordination on all matters relating to the environment. It is also the body charged with the mandate of implementing environmental policies in Kenya.[223] NEMA is therefore charged with the implementation of the legal framework discussed above with regards to the regulation of water pollution through the discharge of effluents by industries.

NEMA is also required to encourage the incorporation of environmental considerations into the development policies, plans, programmes and projects, with the aim of ensuring the suitable management and utilization of environmental resources.[224] In issuing out licences NEMA can therefore incorporate these considerations to industrial owners who wish to discharge effluents into their surrounding water resources, so as to ensure that there is proper management and utilization of these water resources and consequently minimized pollution.

In addition, NEMA is required to identify what projects or programmes would require regular environmental auditing and monitoring.[225] It is therefore up to NEMA to research on all the industries that discharge effluents and to ensure that they carry out regular auditing and monitoring of their activities in order to prevent water pollution and to ensure compliance with the above legal framework.

NEMA is also mandated with the function of undertaking programmes that raise public awareness, and environmental education on the need for sound environmental management.[226] Through this initiative, NEMA may enable the public to be well equipped in making decisions

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[222]Section 7, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[223]Section 9, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[224]Section 9 (2) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[225]Section 9 (2) (j), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[226]Section 9 (2) (m), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

regarding their surrounding natural resources, and in this case their water resources, when it comes to the establishment of industries who plan on discharging effluents into the water.

Finally, NEMA can be sued[227] and can be liable to pay compensation or damages where they cause injury to an individual, their property or interests which occur during the exercise of its powers or its failure whether wholly or partially.[228] Therefore, where NEMA knowingly fails to carry out its mandate, such as carrying out an EIA as was seen in the Owino Uhuru case study, they will be liable.

3.3.2 National Environmental Complaints Committee

EMCA also establishes the National Environmental Complaints Committee (NECC)[229] which is charged with the mandate of carrying out investigations, regarding any complaints or allegations against any person or authority concerning the state of the environment. It may also do so on its own motion, and carry out investigations on any suspected case of environmental degradation.[230] It is also required to undertake public interest litigation on behalf of the Kenyan citizens regarding environmental matters.[231] Therefore, the NECC seems to have the public interest at the forefront as they can carry out investigations regarding water pollution caused by industries through effluent discharge, and subsequently litigate on behalf of the citizens where there has been harm to the environment or the citizens.

3.3.3 National Environmental Tribunal

Section 125 of the EMCA establishes the National Environmental Tribunal (NET)[232] which is a tribunal charged with the mandate of inquiring into any matters regarding EMCA as well as its subsidiary legislations. These matters can be made by any party or made by referral by NEMA and subsequently, the tribunal may make decisions, orders, directions or awards.[233] The establishment of this tribunal enables anyone aggrieved to make a claim, which consequently ensures that there is compliance and implementation of the set regulations regarding the

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[227]Section 7 (2) (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[228]Section 19, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[229]Section 31 (1), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[230]Section 32 (a), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[231]Section 32 (bb), *Environmental Management and Co-ordination Act* (Act No. 5 of 2015).
[232]Section 125, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[233]Section 126 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

regulation of effluent discharge by industries. In addition, when either of the parties is not pleased, they may also appeal to the High Court where the decision will be final.[234]

3.3.4 Water Resources Management Authority

The Water Act establishes the Water Resources Management Authority [235](WRMA) which is a national government agent authority[236] charged with formulating and enforcing standards, procedures and regulations for the management and use of water resources.[237] It is also charged with the enforcement of regulations under the Act[238] and in the co-ordination with other bodies at the regional, national and international levels to ensure the better regulation of the management and use of water resources.[239] Another important function of the WRMA, is the issuance of effluent discharge permits and the monitoring of the quality and quantity of effluent discharge by industries.[240]

The WRMA is therefore required to ensure compliance and implement the laws regarding water use by industries, especially as they discharge their effluents into the water resources.

3.4 Case Law

3.4.1 *Sylvia C Endere v Karen Roses Ltd*

In this case the defendant failed to carry out an EIA or consult the plaintiff when they decided to channel their waste effluent into a dam shared with the plaintiff and consequently the court stated that the plaintiff had a *prima facie* case and was afterwards granted a permanent injunction against the defendant's actions as they had breached the procedure and the law.[241]

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[234]Section 130 (5), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[235]Section 11, *Water Act* (Act No. 43 of 2016).
[236]Section 6, *Water Act* (Act No. 43 of 2016).
[237]Section 12 (a), *Water Act* (Act No. 43 of 2016).
[238]Section 12 (c), *Water Act* (Act No. 43 of 2016).
[239]Section 12 (h), *Water Act* (Act No. 43 of 2016).
[240]-<http://www.aidembs.com/effluent_conference/images/presentations13/Session-1/Eng.Olum.pdf> on 18 December 2017.
[241]*Sylvia C Endere v Karen Roses Ltd* (2006) eKLR.

The facts are that the plaintiff filed a suit seeking an order of permanent injunction for the defendant and its agents from excavating, constructing, directing or channelling storm water, waste effluent, or any other substances into the plaintiff's dam or into the neighbouring dam situated at Simotwet Primary School. The defendant however denied that any waste effluent from its greenhouses was being directed into the plaintiff's dam and was instead being directed into the dam at the primary school since the water was not being used by the community any more. The defendant also argued that the local community and members of the primary school had requested them to desilt the dam since it had become heavily silted and no longer served as a reservoir for water use by the community.[242]

The court held that as much as the defendant had complied with Sections 58-67 of the provisions set in EMCA of 1999, and had carried out an EIA that was approved by (NEMA) before commencing their project on their parcel of land, they still failed to do the same when they desilted the dam situated in the primary school.[243]

Further, in as much as they received the approval of the local community and the members of the primary school, they did not seek the approval of NEMA and also failed to prepare an EIA report. The law also required the defendants to consult with all the parties who would be affected by the said rehabilitation of the dam, which they failed to do in the case of the plaintiff.[244]

The court also held that the plaintiff was within her rights as enshrined under Section 3 of EMCA, which provides that everyone in Kenya has the right to a clean and healthy environment and has the duty to safeguard and enhance the environment and where the person alleges that this entitlement has been, is being or is likely to be contravened, they may apply and seek redress from the High court who will then give directions as they deem appropriate.[245]

This case portrays the importance of consulting every individual that may be affected by a proposed project and industry, especially when there is a likelihood of pollution to a natural

[242] *Sylvia C Endere v Karen Roses Ltd* (2006) eKLR.
[243] *Sylvia C Endere v Karen Roses Ltd* (2006) eKLR.
[244] *Sylvia C Endere v Karen Roses Ltd* (2006) eKLR.
[245] Section 3, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

resource such as water as can be seen in the case. It also shows the importance of EIAs as a compliance and implementation mechanism as was discussed above.[246]

3.4.2 *Kwanza Estates Ltd v Kenya Wildlife Services*

In this case, the plaintiff sought an injunction against the defendant who had begun constructing a public toilet and showers on the beach front of Kilulu Island and Blue Bay Watamu. The defendant had begun the construction without due consideration of its effects, such as the discharge of effluents into the sea which was adjacent to the plaintiff's property and which would result in the devaluation of its prime property. In addition, the defendant did not obtain an EIA report or a license from NEMA prior to the construction as is required by the law.[247]

In its judgment, the court mentioned the importance of public participation which is necessary before the financing or carrying out of any project or activity, which has been provided for under the Second Schedule of the EMCA 1999 without the submission of an EIA report to NEMA.[248] The court also mentioned the importance of an EIA as a tool used to inform the owner of a proposed project or activity of the likely effects the activity or project would have on the surrounding environment and consequently should the impact be negative, it enables the decision makers to formulate mitigation measures that would reduce or eliminate any harm.[249]

Furthermore, the importance of public participation was observed on the need to have an EIA report published on the newspaper for two consecutive weeks in a gazette or newspaper circulating within the area of the proposed project or activity.[250] In addition the public should be allowed sixty days to issue out oral and written comments.[251] It was stated that this enables individuals like the plaintiff to voice their issues on matters that may have an impact on their health, welfare and entitlement to a clean and healthy environment.[252]

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[246] *Sylvia C Endere v Karen Roses Ltd* (2006) eKLR.
[247] *Kwanza Estates Ltd v Kenya Wildlife Services* (2013) eKLR.
[248] *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[249] *Kwanza Estates Ltd v Kenya Wildlife Services* (2013) eKLR.
[250] Section 59 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[251] Section 59 (1) (d), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[252] *Kwanza Estates Ltd v Kenya Wildlife Services* (2013) eKLR.

The court thus held that there was a prima facie case and granted an injunction against the defendant's construction. The defendant failed to obtain an EIA report prior to the construction, that showed the authorization by NEMA and furthermore, there was no report by an expert that indicated how the effluents would be treated before their discharge.[253]

The importance of public participation and employing the EIA are seen as necessary procedures that ensure compliance and the formulation of mitigation measures where there is a likelihood of pollution.

3.4.3 *Republic v Nairobi City County & another Ex-parte Premier food industries*

In this particular case, the High Court failed to address the issue of the alleged facts by the respondent that the applicant was discharging effluents into the environment, which adversely affected and flooded the residential houses of the estate established close to it, and which subsequently polluted the Mathare River. However, the applicant disputed these facts and stated that they had been compliant with the law. The court held that both the applicants and the respondents had disputed facts and that there was need for viva voce evidence (with the living voice) to be taken, as well as a visit to the locus in quo (scene of the event) which were proceedings which could not be addressed in a judicial review proceeding, where determinations were based on affidavits.[254]

The court could therefore not determine whether the applicant was guilty or not of discharging the effluents into the environment as it was a matter that would better be investigated and determined by specialized bodies established under the relevant legislation.[255]

With this delay, the perpetrators probably continued to discharge effluents into the water resources, leading to more pollution of the river and a violation of the set laws.

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[253] *Kwanza Estates Ltd v Kenya Wildlife Services* (2013) eKLR.
[254] *R v Nairobi City County & another Ex-Parte Premier Food Industries* (2016) eKLR.
[255] *R v Nairobi City County & another Ex-Parte Premier Food Industries* (2016) eKLR.

3.4.4 *Japhet Chengo v R*

This case dealt with the issue on whether section 75 of the EMCA which requires that industries obtain EDL was discriminatory. The facts are that the petitioner was the manager of Crystal Bay resort and was charged with the offence of contravening the requirements of section 75 of EMCA as read with section 6(a) and 27 of the Environmental management (Water Quality) Regulations. The petitioner stated that many other entities were not complying with these regulations since there was no centralized sewage system in the Malindi municipality area.[256]

However, the court held that the provision was not discriminatory since it would not be logical to impose the same discharge effluent standards and requirements, for industries whose effluents would be more toxic than that of a domestic activity. In addition, it stated the importance of an EDL in the regulation and monitoring of effluents discharged by industries into the environment.[257]

This case depicts the lack of compliance by some of the entities within that area by not obtaining the relevant EDL, and due to the failure of the relevant local authorities in establishing a centralized sewage system that would enable the entities to discharge their effluents, which is a failure in implementation.

3.4.5 *Peter K Waweru v Republic*

The facts of this case are that the applicant and the interested parties were plot owners in the Kiserian Township and had erected residential cum commercial buildings in the plot which had been authorized. In addition, every building had a septic tank installed for the disposal of its solid waste and effluents. However, there were complaints by the authorities of the indiscriminate discharge of effluents into the trading center, open channels on the road and finally unto the Kiserian River.[258]

The court disregarded the applicants and interested parties excuse that installing an effluent treatment system would be too expensive to deal with, firstly because sustainable development

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[256] *Japhet Chengo v R* (2012) eKLR.
[257] *Japhet Chengo v R* (2012) eKLR.
[258] *Peter K Waweru v R* (2006) eKLR.

has a cost element that should be met by all developers. In addition, these individuals would have used alternative measures to prevent the deterioration of the environment and thus the court relied on the polluter pays principle and caused the applicants to pay for the cost of pollution as well as that of alternative measures.[259]

The court also relied on a case from Pakistan *General Secretary West Pakistan Salt Miners Labour Union v The Director of Industries and Mineral Development* where residents of a salt mining area made a claim to the Supreme Court that, that particular activity would result in the contamination of their water resource. They requested the Supreme Court to enforce their right to a clean and unpolluted water resource, which subsequently held that Article 9 of their Constitution which stated that no person should be deprived of life or liberty should have an expansive definition, since the right to have unpolluted water was a right to life in itself.[260]

In addition, the court stated that 'Environmental crimes under the Water Act, Public Health Act and EMCA cover the entire range of liability including strict liability and absolute liability, and ought to be severely punished because the challenge of the restoration of the environment has to be tackled from all sides and by every man and woman'.[261] This implies the need for strict measures in implementing the set regulations in order to ensure compliance.

Therefore, as seen above, the regulations are adequate and sufficient in the prevention of water pollution, and in this case, water pollution caused by the discharge of industrial effluents. The regulations provide for the definition of pollution[262] and prohibit the discharge of effluents or any pollutant into a water resource without an EDL[263] unless it is in accordance to the Act.[264]In addition, the regulations also ensure compliance through licencing of industries discharging effluents by the lead agencies as well as the Authority. It is also ensured through regular monitoring, auditing and reporting by the industries who are issued these licences.[265] There is also accountability and self-

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[259]*Peter K Waweru v R* (2006) eKLR.

[260]*General Secretary West Pakistan Salt Miners Labour Union v The Director of Industries and Mineral Development* (1994), The Supreme Court of Pakistan.

[261]*Peter K Waweru v R* (2006) eKLR12.

[262]Section 2, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[263]Section 6 (a), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

[264]Part III, *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

[265]Section 14 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

regulation by the industries who are required to make regular reports to be assessed by the authority on the quality and quantity of effluents that they discharge.[266]

However, there still seems to be poor implementation of these regulations and one of the examples would be the state of Kenya's Nairobi River which has been polluted as a result of the continuous discharge of effluents by industries.[267]

I will rely on the Owino Uhuru Case study to show this poor implementation of the regulations set on the discharge of effluents by industries. In this case study, a lead battery recycling factory owned by EPZ Ltd was erected just 50 meters away from the Owino Uhuru slums and further, after investigations and experiments were carried out, the plant was found to emit toxic fumes and released untreated effluents, leading to pollution of the soil and streams surrounding the area. The conclusions deduced after the investigations revealed a high concentration of lead in the surrounding environment and this was clearly a detriment to the residents' health.[268]

The challenges observed in the case study include the failure of the owners of the factory to carry out an EIA before the erection of the project[269] as is required by the Kenyan legal framework.[270] The lead battery recycling factory was erected in 2007 and the EIA was not carried out until after the establishment of the factory.[271]This means that there was no public participation and the opinion and comments of the surrounding community and the lead agencies was not obtained.

The Authorities however, carried out investigations in 2009 and found that the factory had violated the law and that its activities were having adverse effects on the residents and the environment.[272] Consequently, the factory was closed briefly, and was reopened with little changes where the workers were granted safety gear but no changes were made to address the adverse effects taking

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[266]Section 14 (1), *Environmental Management and Co-ordination (Water Quality) Regulations* (Act No. 121 of 2006).

[267]Kinyanjui A W, 'Impact of Water Pollution on Nairobi River' Unpublished Masters in Environmental Science, Kenyatta University, Nairobi, 2008, 4.

[268]-<https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[269]-<https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[270]Section 58, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[271]Olingo A, 'The smelter is gone, but slum dwellers still paying price of lead poisoning' The East African, 26 July 2014-<http://www.theeastafrican.co.ke/news/-slum-dwellers-paying-price-of-lead-poisoning/2558-2398606-nr47d3z/index.html> on 18 December 2017.

[272]-<http://artmatters.info/2014/06/toxic-lead-threatens-thousands-of-lives-on-the-kenyan-indian-ocean-coast/> on 18 December 2017.

place in the surrounding environment including the effluents and emissions discharged by the factory.[273]

Upon getting informed of this failure to comply, the Authorities still failed to monitor the quantity and quality of the effluents and lead emissions discharged by the factory, and consequently failed to order for the shutting down of the factory until much later.[274]

In addition, the plant was discharging effluents into the environment including the community's surrounding water sources without regard to the set Water Quality regulations and without obtaining a licence to do so.[275]

Furthermore, once the community succeeded in shutting down the factory, the owners of the factory failed to clean up the environment or compensate those directly and indirectly affected by the effects of the pollution, caused by effluents getting discharged into their source of water.[276]Therefore, this case shows the poor implementation of the present laws in addressing water pollution caused by the discharge of effluents by industries in Kenya.

In conclusion, as can be depicted in the chapter's discussion above, the laws give adequate regulations and establishes institutions that prohibit and regulate the discharge of effluents by industries but as discussed in the case study, there was lack of compliance by the industry or implementation of the laws by the proper institutions regarding the EIA, discharge standards as well as licencing.

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[273]-<http://artmatters.info/2014/06/toxic-lead-threatens-thousands-of-lives-on-the-kenyan-indian-ocean-coast/> on 18 December 2017.

[274]Sanga B, 'Owino Uhuru lead poisoning victims now sue State for Sh1.6 billion' The Standard, 20 August 2015-<https://www.standardmedia.co.ke/article/2000173479/owino-uhuru-lead-poisoning-victims-now-sue-state-for-sh1-6-billion> on 18 December 2017.

[275]-<https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives> on 22 August 2017.

[276]Olingo A, 'The smelter is gone, but slum dwellers still paying price of lead poisoning' The East African, 26 July 2014-<http://www.theeastafrican.co.ke/news/-slum-dwellers-paying-price-of-lead-poisoning/2558-2398606-nr47d3z/index.html> on 18 December 2017.

CHAPTER FOUR: COMPARATIVE STUDY

Introduction

This chapter will involve a comparative study between Kenya's legal framework on the discharge of effluents by industries, and Malaysia's legislation on the Environmental Quality (Industrial Effluent) Regulations. It discusses provisions in the Kenyan legal framework that are equivalent to the Malaysian regulations as well as provisions in Malaysia's regulations that may be absent in Kenya's legal framework.

It also discusses some of the policies and mechanisms outside of the Industrial Effluent Regulations, that the Malaysian and Kenyan governments have strived to include in their regulatory framework in order to reduce pollution caused by the discharge of effluents by industries.

The study will focus on Malaysia as a comparative study because it has an adequate legislation that focuses specifically on the discharge of industrial effluents. Furthermore, the country has employed several measures and techniques that have proved to be successful in ensuring the implementation as well as compliance from the industries.

Chapter 3 involves the analysis of the Kenyan legal framework that is set to address water pollution by industries through the discharge of effluents. It also answers the research questions in light of this framework and introduces some of the key issues and challenges regarding the discharge of effluents by industries near residential areas as was observed in the Owino Uhuru case study.

4.1 The Environment Quality (Industrial Effluent) Regulations of Malaysia 2009

Malaysia's Industrial Effluent Regulations, (herein referred to as the regulations) has almost similar aspects with Kenya's legal framework which provides for the discharge of effluents by industries.[277] These regulations apply to any premises that discharge or release any industrial

[277]Section 3, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).

effluents onto any soil or any inland water that constitutes Malaysian waters.[278] In contrast to Kenya's legal framework which consists several legislations, Malaysia has one major legislation that specifically provides for the discharge of effluents by industries.[279]

The regulations define industrial effluents to include "any waste in the form of liquid or wastewater that is generated from a manufacturing process including the treatment of water, for water supply or any activity occurring at an industrial premises."[280] Kenya's legal framework on the other hand, only defines what effluents are in general and has no specific definition of industrial effluents as is provided in section 2 of the Environmental Management and Coordination Act of 1999 (EMCA).

Before carrying out certain activities that may lead to the formation of a new source of discharge of industrial effluents, the regulations provide that the owner is required to obtain a prior written permission from the Director General.[281] This provision also includes the following activities; where there is construction on any land, building or facility that has been constructed for a purpose that may lead to the formation of a new source of industrial effluent,[282] where the owner makes, causes or permits any change to be made to a plant, machine or equipment that is used at the premises,[283] and finally, where the owner carries out upgrading work on an existing industrial effluent treatment system in such a way that leads to a change in the quantity and quality of the industrial effluents discharged.[284] All these activities require the owner to seek permission from the Director General beforehand.[285]

Similar to this, EMCA and the Environmental Management and Coordination (Water Quality) Regulations of 2006 also require that industries should obtain a licence should they want to discharge effluents.[286] This licence is to be obtained from the local authority that is charged with the supervision and operation of the particular sewage system that the industry wishes to discharge its effluents.[287]As discussed in the previous chapter, the local authority is required to rely on certain

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[278]Section 3, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[279]*Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[280]Section 2, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[281]Section 4 (a), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[282]Section 4 (b), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[283]Section 4 (c), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[284]Section 4 (d), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[285]Section 4, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[286]Section 75 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[287]Section 74 (1), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

environmental and social guidelines while issuing out these licences.[288] In addition, industries are expected to carry out environmental impact assessments before the erection of an industry in order to determine whether the activities it carries out would have adverse effects on the environment. Afterwards, once the authority approves the industry, the proponents would be issued an EIA licence.[289]

The Regulations also accord responsibilities to the owners or occupiers of a premises that discharge industrial effluents, to construct an industrial effluent treatment system with the help of a professional engineer.[290] The treatment system should collect and treat any industrial effluent that is discharged, and should be in accordance with the 'Guidance Document on the Design and Operation on the Industrial Treatment System'.[291] Section 2 of the Regulations defines an industrial effluent treatment system as "an effluent collection system designed and constructed for the purpose of reducing the potential of the industrial effluent to cause pollution."[292] Kenya's EMCA also requires that industries should establish a plant that treats the effluents before they are discharged to the environment.[293]

As per the Regulations, the operation of a treatment system is to be carried out only by a competent person who has been duly certified by the Director General.[294] In addition, no one is allowed to operate an industrial effluent treatment system unless it complies with the requirements set in section 5(1) of the Regulations.[295] Consequently, in operating the treatment system, the owners are required to do so in accordance with sound engineering practice,[296] and are also required to carry out performance monitoring in accordance with the requirements set in the 'Guidance document on Performance Monitoring of Industrial Effluent Treatment systems'.[297] In contrast, other than requiring the establishment of the treatment plant, Kenya's legal framework does not address the

[288]Section 75, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[289]Section 63, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[290]Section 5 (2), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[291]Section 5 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[292]Section 2, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[293]Section 74(2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[294]Section 10, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[295]Section 6, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[296]Section 8 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[297]Section 9 (1) (a), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).

manner of operation of the treatment plant, whether it should be handled by a professional or not and also fails to address whether the performance of the treatment plant should be monitored.

Having installed an industrial effluent treatment system under the regulations, the owner is prohibited from discharging, causing or permitting to discharge effluents through a by-pass.[298] A by-pass is defined as any diversion of industrial effluent from any portion of an industrial effluent treatment system.[299]

The owners of any premises discharging industrial effluents also have an obligation to install monitoring, sampling and recording equipment, at their own expense,[300] and to consequently maintain a record of the monitoring data[301] which shall be submitted after every thirty days to the Director General,[302] and which shall be made available for inspection by any authorised officer.[303] Kenya also has an equivalent to this provision, under section 14 of the Water Quality regulations which states that the owner of an EDL, should ensure regular monitoring of the quality and quantity of effluents through quarterly records.

Another obligation under the Regulations that is accorded to the owner of the premises that discharges industrial effluents, is to ensure that the effluents discharged are in accordance with the best management practice for any parameter that is set out in the Ninth schedule of the Regulations.[304] In addition, any parameter discharged into the inland waters is expected to not be greater than the standards set out in the Fifth Schedule of the regulations.[305] Kenya's Environmental Management and Co-ordination (Water Quality) Regulations also requires that any effluent discharged should be in accordance with the standards set out in the Fourth schedule.

The point of discharge of effluents is expected to meet the requirements set out in the Eleventh schedule, and the owner of the premises is required to formulate layout plans that clearly depict the positioning of the point of discharge.[306] The layout plans are then to be shared with the Director

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[298]Section 18 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[299]Section 18 (2), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[300]Section 7 (1) (b), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[301]Section 7 (2), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[302]Section 7 (3), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[303]Section 7 (4), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[304]Section 14, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[305]Section 11, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[306]Section 17 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).

General thirty days before the commencement of the activity or project.[307] This same requirements are relied on when the owner wishes to make any alterations or changes to the proposed point of discharge.[308]Unfortunately, Kenya's legal framework seems to be silent on this provision regarding the point of discharge or whether the proponent should formulate layout plans regarding the same.

In case of an accidental spillage or leakage of industrial effluents which directly or indirectly gains access to the soil or any Malaysian water, the owner must, within six hours of the spillage inform the Director General.[309] Once they have informed the Director General, the owners must then bear the costs of cleansing, containment or abatement of the spillage to the satisfaction of the Director General.[310] As much as Kenya's legal framework does not specifically touch on the spillage of industrial effluents, section 72 of EMCA, relies on the polluter pays principle and states that the person guilty of water pollution will be liable to pay the cost of the removal of the pollutant as well as the restoration of the damaged environment. The polluter will also pay costs of reparation, restitution, restoration or compensation to anyone who has been adversely affected by the pollution.[311]

In addition, where damage occurs due to the spillage, the Director General under the Regulations can determine the damage and consequently recover the costs and expenses from the said owners.[312] The Director General can also recover any costs or expenses from the owners, where he undertook to carry out the cleansing, containment or abatement himself.[313]

The Regulations also require that anyone who holds a licence cannot make any changes to the activities carried out in the premises, in a manner that may alter the quality or quantity of the industrial effluents discharged without gaining the permission of the Director General.[314] These changes are provided for under Section 22 (2) of the Regulations.

The Regulations also provide that the same requirements set for a certain premises will exist even during the change of occupancy, when the licence of the prior owner has not expired. The

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[307]Section 17 (2), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[308]Section 17 (3), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[309]Section 20 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[310]Section 20 (2), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[311]Section 72 (2), *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[312]Section 20 (4), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[313]Section 20 (5), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[314]Section 22 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).

requirements will exist until the new occupant is granted his own licence.[315] The Water Quality Regulations however, states that an EDL cannot be transferred to someone else.[316]

The owners of a premises are also required to ensure that their employees are well trained in best management practices, environmental requirements as well as knowledge on the operations of industrial effluent discharge systems.[317] In this case also, Kenya's legal framework fails to give provisions regarding the training of employees working in the industries.

Finally where there is an undesirable occurrence as provided for under the Twelfth Schedule which includes severe environmental pollution among others, the Director General may issue a prohibition order to the owner of the premises against the activities taking place in the premises and may revoke the prohibition once they have taken remedial measures.[318] EMCA also states that the local authority may in writing, cancel out the licences issued to industries where they fail to comply with the legal provisions stated, where they do not comply with the requirements on the licences and where the local authority is of the view that it would be in the best interest of the public and the environment.[319]

Hashim Daud in addressing the legislative approach of water quality management in Malaysia, stated that it used measures such as a control and command approach which utilised the effluent discharge standards.[320] A command and control approach in environmental matters generally involves the setting of standards that industries should comply with in order to protect or improve environmental quality.[321]

In addition, any sources of pollution found upstream were subjected to stricter measures regarding these standards than those found downstream.[322] The laws also use other mechanisms, such as

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[315]Section 26, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[316]Section 18, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[317]Section 28 (1), *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[318]Section 30, *Environmental Quality (Industrial Effluent) Regulations* (Malaysia).
[319]Section 76, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).
[320]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.
[321]Pag-aaral S M, 'A Law of Nature: A command and Control Approach' 3(1), *PIDS Economic Issue of the Day*, 2002.
[322]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

regular monitoring and continuous assessments of the quality of their water bodies to determine its improvement or deterioration.[323]

While relying on the Environmental Quality Act of 1974 (Malaysia), the Act gives provisions on how to prevent water pollution by requiring individuals to carry out EIAs on projects that pose a threat of pollution, and some of these projects include industrial activities.[324] The case is similar in Kenya as provided for in the EMCA[325] and the Environmental (Impact Assessment and Audit) regulations that require EIAs to be carried out before any project that may have adverse effects on the environment is conducted.[326]

The amended Environment Quality (Sewage and Industrial effluents) Regulations of 1979 (Malaysia) as well as Section 4 of the Environmental Quality (Industrial Effluent) Regulations of 2009 (Malaysia), also require one to obtain permission before constructing any building or carrying out any activities that lead to the discharge of a new source of effluents.[327]

In ensuring that industries do not cause pollution to the Malaysian waters, there was use of a combination of two mechanisms, that is, economic and command-control instruments.[328] This mechanism requires the industries to invest in control pollution research and development, and to install wastewater treatment systems which captures the effluents before they can be discharged, rather than having the owners pay pollution fees that is provided for on the licence.[329] These

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[323]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

[324]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

[325]Section 58, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).

[326]Section 2, *Environment (Impact Assessment and Audit) Regulations* (Act No. 101 of 2003).

[327]*Environmental Quality (Industrial Effluent) Regulations* (Malaysia).

[328]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

[329]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

mechanisms have proven to be successful in Malaysia and have reduced the pollution load into the Malaysian rivers by 90%.[330]

In order to provide incentive for premises owners to install pollution control equipment, the Malaysian government under its Income Tax (Qualifying Plant Allowances) (Control Equipment), provides for a special capital allowance for any company that installs this equipment in setting up its plants.[331] The capital allowance has an initial rate of 40% and an annual rate of 20% for the qualifying plants.[332] Section 57 of Kenya's EMCA also gives a provision on tax incentives and states that tax incentives includes tax rebates to industries that invest in plants and equipment that ensures pollution control.[333] Kenya has recently (2017) removed the Environment Impact Assessment levy that required all project proponents to pay certain fees for their EIA, with the hopes that more project proponents will comply with the regulations.[334] This however, does not affect the licencing requirement or the fees that is payable to the EIA experts.[335]

Finally, it was observed that in Malaysia, the small and medium industries were unable to comply with the effluents standards, mostly due to financial problems and the lack of space to install the treatment systems.[336] These industries are encouraged to use alternative methods to prevent water pollution through effluent discharge by relying on cleaner production, waste minimisation and

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[330]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

[331]-<http://www.doe.gov.my/eia/wp-content/uploads/2012/03/A-Guide-For-Investors1.pdf> on 11 January 2018.

[332]-<http://www.doe.gov.my/eia/wp-content/uploads/2012/03/A-Guide-For-Investors1.pdf> on 11 January 2018.

[333]Section 57, *Environmental Management and Co-ordination Act* (Act No. 8 of 1999).

[334]Ngugi B, 'Building costs set to drop after State agencies scrap fee' Business Daily, 24 January 2017-<https://www.businessdailyafrica.com/markets/Building-costs-set-to-drop-after-State-agencies-scrap-fee-/539552-3785622-a9dnld/index.html> on 17 January 2017.

[335]-<http://kepsa.or.ke/2017/02/16/business-reforms-waiver-of-levies-environmental-impact-assessment-and construction-levy/> on 17 January 2018.

[336]Abdullah F M, 'Application of Land Use Approaches in Controlling Industrial Wastewater Discharge Into Rivers' *Journal of the Malaysian Institute of planners*, 2004, 74 -<http://www.planningmalaysia.org/index.php/pmj/article/download/Article%202-5/41> on 12 January 2018.

waste re-utilization.[337] They are also encouraged to promote self-regulation and endeavour to achieve the ISO 14001 certification for compliance with the discharge standards.[338]

In conclusion, Malaysia's and Kenya's legal framework are almost similar in their regulation on effluent discharge by industries. However, Malaysia seems to be more effective in its implementation since it employs other techniques and measures to ensure there is compliance by the industries. Some of these techniques include the command and control approach, as well as economic instruments such as well-established tax incentives.

[337]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

[338]Daud H, 'Legislative Approach to Water Quality Management in Malaysia – Success and Challenges' Department of Environment Malaysia, 2010-<http://www.wepa-db.net/pdf/0810forum/paper34.pdf> on 10 January 2018.

CHAPTER FIVE: CONCLUSION AND RECCOMENDATIONS

Introduction

The main purpose of this study was determining whether the Kenyan Legal framework addressing the discharge of effluents by industries was efficient and adequate in preventing water pollution caused by this form of industrial pollution. The study also sought to answer the question of whether the laws are adequate in ensuring the implementation and compliance of the set regulations on effluent discharge.

The previous chapter carried out a comparative study with Malaysia and discussed its legal framework addressing the discharge of effluents by industries. It also discussed measures and techniques outside of the legal framework that have assisted in ensuring implementation and compliance by the industries.

5.1 Findings

Under Chapter 3, the legal framework discussed is adequate as it sets the standards that the industries are expected to adhere to in order to prevent the degradation of the water resources that these industries discharge their effluents. Furthermore, before discharging these effluents, an industry should obtain an EDL from the Authority[339] as well as an EIAL before they can be established or begin any of their activities that would cause adverse effects to the environment, and the discharge of effluents would be one of these activities.[340]

In addition, the industries are required to construct a treatment system[341] which is an end of pipe technique that prevents the pollution of water resources by treating effluents before its discharge.[342] The provisions also require the Authorities to ensure regular monitoring and auditing of these industries to guarantee compliance.[343] Furthermore, where there is pollution by the industries through effluent discharge, the provisions rely on the polluter pays principle and the

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[339] Section 75 (1), *Environmental Management Co-ordination Act* (Act No. 8 of 1999).
[340] Section 58, *Environmental Management Co-ordination Act* (Act No. 8 of 1999).
[341] Section 74 (2), *Environmental Management Co-ordination Act* (Act No. 8 of 1999).
[342] -<https://www.eea.europa.eu/help/glossary/gemet-environmental-thesaurus/end-of-pipe-technology> on 21 January 2018.
[343] Part VII, *Environmental Management Co-ordination Act* (Act No. 8 of 1999).

Utilitarianism theory on internalization of pollution costs by the polluter and in this case the industries.[344]

However, even with the adequate provisions on effluent discharge, the Owino Uhuru case study displays poor implementation of these laws in regards to effluent discharge standards and licencing as well as the EIA procedure.[345]

The Kenyan Government should model Malaysia's framework and combine all the regulations that regulate the discharge of effluents by all types of industries as was observed. It should also include provisions regarding the operation of treatment plants in these industries and should ensure it is operated by professionals or trained employees. In addition, the command and control as well as economic techniques and measures relied on in Malaysia can also ensure implementation as was discussed in Chapter 4.

[344]Velasquez I, *Business Ethics: Concepts and Cases.*

[345]Olingo A, 'The smelter is gone, but slum dwellers still paying price of lead poisoning' The East African, 26 July 2014-<http://www.theeastafrican.co.ke/news/-slum-dwellers-paying-price-of-lead-poisoning/2558-2398606-nr47d3z/index.html> on 18 December 2017.

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