



T.C.
KAHRAMANMARAŞ SÜTÇÜ İMAM UNIVERCITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCE

**GEOGRAPHICAL ANALYSIS OF THE DISTRIBUTION
OF OIL AND GAS REFINERIES
IN THE FARMLAND OF ERBIL PROVINCE AND
ITS IMPACTS ON THE AGRICULTURE
OF ERBIL, BY USING GIS**

KARWAN OBAID HAMAD HAMAD

MASTER THESIS
DEPARTMENT OF BiOENGINEERING AND SCiENCES

KAHRAMANMARAŞ-2017

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M.Sc. Thesis entitled “GEOGRAPHICAL ANALYSIS OF THE DISTRIBUTION OF OIL AND GAS REFINERIES, IN THE FARMLAND OF ERBIL Province AND ITS IMPACTS ON THE AGRICULTURE OF ERBIL, BY USING GIS and prepared by Karwan Obaid Hamad HAMAD, who is a student at Bioengineering and Sciences Department, Graduate School of Natural and Applied Sciences, Kahramanmaraş Sütçü İmam University, was certified by all the majority jury members, whose signatures are given below 17.3.2017

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I hereby declare that all information in the thesis has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all materials and results that are not original to this work.



KARWAN OBAID HAMAD HAMAD

Note: The original and other sources used in this thesis, the declaration, tables, figures and photographs showing the use of resources, subject to the provisions of Law No. 5846 on Intellectual and Artistic Works.

ERBİL ŞEHRİNDEKİ TARIM ALANLARINDA PETROL VE GAZ RAFİNELERİN DAĞILIMININ COĞRAFI ANALİZİ VE CBS KULLANILARAK TARIM ÜZERİNDEKİ ETKİLERİ

(YÜKSEK LİSANS TEZİ)

KARWAN OBAID HAMAD HAMAD

ÖZET

Bu araştırma, petrol ve gaz rafinelerinin tarımsal üretim üzerindeki etkilerini konu etmektedir. Araştırma Erbil, Irak bölgesinde yapılmıştır. Temiz ve verimli tarımsal arazinin insan varlığının sürdürülmesi ile ilgili önemi göz önünde bulundurmakla, Irak'ın Erbil şehrindeki tarım meselesini çevreleyen sorunlar analiz edilmeye çalışıldı. Tarım, Erbil şehrinin sosyal ve ekonomik yaşamının ayrılmaz bir parçasıdır. Bölge halkı, değişik tarım ürünlerini elde etmek amacıyla yalnızca bölgede değil, tüm Irak'ta geniş alanları kullanmışlardır. Bu nedenle, bölge için ve tüm Irak için ekonomik bir gelir kaynağı olmuştur. Erbil, tarımın yanı sıra petrol ve gaz benzeri doğal kaynak üretimine geçmiştir. Yalnız bu durum, Irak'ın diğer bölgelerinde olduğu gibi Erbil şehrinin de bazı sorunlar yaşamasına yol açmıştır. Genel olarak, hizmetlerin planlanmasında spesifik kriterler bulunmamakla birlikte petrol rafineleri tarım arazilerin kalbine dağılmıştır. Bu nedenle, tarım işleri azalmaya yüz tutarak, çevre etkin bir şekilde olumsuz etkilenmiş çünkü şehirde eskiden ve hala devam eden ağır hava kirliliği yaşanmış ve bu durum halka ve mallarına zarar vermiştir. Çalışmada, CBS teknolojisi kullanılarak, Erbil şehrindeki petrol rafinelerinin coğrafi alanları, şehirdeki petrol rafinelerinin dağılımı ve seçilen yerlerin uygunluğu dahil olmak üzere, benzeri önemli noktalara değinilmiştir. Ayrıca bu durumun tarıma ve halkın sağlığına etkileri analiz edilmeye çalışılmıştır. Bunun yanı sıra, petrol rafineleri mevkiilerinin şehirdeki kentsel ve nüfus sayısının gelişimi ile ne kadar bağdaştığı gibi sorulara yanıt aranmıştır. Irak Petrol Bakanlığı ve Bölgesel hükümetin, petrol rafinelerinin yeniden dağılımı hakkında pratik bir adım veya pratik programlama isteği varmı? Bu çalışmada sunulan yeni kriterlere göre bu sorumluluklar petrol bakanlığının (Doğal Kaynaklar). veya diğer bakanlıklara mı aittir? Araştırmada, doğru ve titiz sonuçları elde etmek için farklı modern teknolojileri kullanacaktır. Sonuç olarak, çalışma sonuna konuyla ilgili sorulara bazı öneriler sunulacaktır.

Anahtar Kelimeler: Coğrafik Analiz, Petrol, Ziraat, Kirlilik, GIS

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(M.Sc. THESIS)**

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ABSTRACT

The research project attempted to investigate the impact of oil gas refineries on agricultural production: A case study of the Erbil Local Government of North Iraq. Owing to the importance of clean and productive agricultural soil for the continued existence of man, this study investigated and analysis various situations and issues surrounding agriculture in the city of "Erbil" region of Iraq since, agriculture has always been an integral part of Erbil social and economic life. Its people have a very keen interest in cultivating their vast plain of land to produce various crops not only for the city itself but entire Iraq. Therefore, as an economic hob for the North Iraq and indeed Iraq as whole. Besides farming Erbil has moved into producing natural resources such as oil and gas. However, this can be seen as one of causes for Erbil to suffers from some problems as any Iraqi cities, which generally no specific criteria followed in the planning of most services mainly the distributions oil unlawful refineries in the heart of farmlands. Hence, agricultural in general has been declined and environment has been particularly affected because the city has and continues to experience difficult air pollution problems which have negatively impacted on citizens and their goods.

The present work aims to highlight some important point such as the geographical areas of the oil refineries in Erbil Province by using GIS Technology and focusing on the distribution of oil refineries in the city, including an examination of their suitability of the places and how it has affected the agricultural and the health of the citizen as well as; answering to the questions like are refineries locations and how safe and suitable in accordant with developing in parallel with urban and population growth in the city? Does the Ministry of oil in Iraq and its regional government intend to put into practice any planning or practical schedule regarding refineries redeployment, based on the new criteria introduced in the present study? Are these new criteria the responsibilities of the Ministry of Oil (Natural Resources) or the responsibility of other ministries? The Study will, reach to the end by using different modern technologies to achieve accurate and precise results. Finally, the study will come to conclusion by providing some recommendation to the issue.

Keywords: Geographical Analysis, Petroleum, Agriculture, Pollution, GIS

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LIST OF SYMBOLS AND ABBREVIATIONS

BC	:	Before Christ
DN	:	Digital Numbers
DNO	:	Det Norske Oljeselskap
GIS	:	Geographical Information System
MNR	:	Ministry of Natural Resources
NRM	:	Natural Resources Minister
TPH	:	Total Petroleum Hydrocarbons
H₂S	:	Hydrogen Sulfide
WHO	:	World Health Organisation



1. INTRODUCTION

Historical proof argument shows to the first domestication of sheep, goats and growing crops as taking place in the Upper valleys of Mesopotamia which is presently recognized as North of Iraq (Mirawdeli, 2010). The region, enjoy relatively fruitful soil with sufficient rainfall and a varied landscape with numerous various types of soil (Mark, 2010). From the southern plain to the gentle hills, rain-fed grain cultivation is main production generally wheat. In the places with plenty water, vegetable cultivation utilizing underground water vegetable cultivation utilizing underground water irrigation while in the sloping fields, fruit cultivation is widespread irrigation while in the sloping fields, fruit cultivation is common (Ministry of Agriculture Erbil 2013). In this way, numerous conditions of farming are practiced, making the most of the varied climate and topographical conditions. Beside, agricultural in recent decades, Iraq-Erbil has become one of the most recent areas of interest to international oil and gas companies and a major producer and exporter of crude petroleum oil which now can be seen as main important source of economic for the region (Agbogidi et al., 2005).

The improving of main oil and gas reserves in the autonomous part of Iraq is a presently event, dating back no earlier than 2005. In spite of promising geological signs, political cases extremely avoided exploration and output until after the US-led invasion of Iraq and removal Saddam Hussein period on power. The tale since then has charmed main media attention, maybe even more than has been devoted to the many areas in the south of Iraq and in particular Erbil province which is a capital city of the North-Iraq (Pour, 2015). Erbil is stands upon land previously known as: Urbilum, Arbaelo, Erbil or Hewlêr. Thus, consequently, definitions and usage of the territory have changed and evolved over time.

1.1. The important of this thesis is the location of the Erbil

The geographical location of Erbil is, located roughly 350 km north of Baghdad and 80 km east of Mosul (Mills, 2016). Oil exploration in Erbil province began in the 2000s and extensive production facilities were established. In the past few years numerous international investors have started investing in the North of Iraq to explore the oil fields in the area. Whole the oil main actors such as Exxon, Chevron, French giant Total and

the Russian major Gazprom Neft invaded the section to safe a place for their processes. According to the Minister of Natural Resources in Regional Government, Ashti Hawrami there are more than 50 foreign companies are presently operating in the region and invested between 15 to 20 billion dollars and are searching for oil and gas (Daily Ekurd, 2016). Therefore, it can be a good source of income but nevertheless, as crude oil has its side effect beside its economic benefit, as its comes from the well, it contains mixture of hydrocarbon compounds and relatively some quantities of other materials such as oxygen, nitrogen, sulphur, salt, water and some trace metals.

1.2. The reason why this thesis imoporant, is because environment has couosed lots of damages to the agricultural in the Iraq as whole due to oil industry

In the refinery, most of these non-hydrocarbon substances are ejected and the oil is broken down into useful products for many reasons, including for agriculture such as for irrigating land or crops. on the other hand it has various abuses containing spillage of petroleum (crude oil) And petroleum-by outputs, discharging of waste and other polluting actions which can also reduce the usability of land for development (Osam, 2011). Chemical risks like heavy metals through direct ingestion of contaminated soil, consumption of crops and vegetables grown on the polluted lands or drinking water that has infiltrated through such soils (Mclaughlin et al., 2000). These pollutants possibly will cause long- or short-term damage by exchanging the growth rate of plant or animal kinds, or by interfering with human amenities, ease, health or property worths (Fullr, 2006).

The description of crude oil and gas pollution in this research embraces oil spillages on crop fields, fields of crop farms engaged by many illegal refineries, flow stations, oil wells, gas flaring sites, pipeline laying sites, borrow pits and other oil exploration, exploitation and related activities. Cadmium, lead and zinc are also delivered in tiny particulates like dust from rubber tyres on busy road surfaces; the minor size lets these toxic metals to rise in the wind to be inhaled, or transported onto topsoil or edible plants through precipitation of their compounds or by ion exchange into soils and muds, and this may have multiple effects on the environment and agricultural (Nwaichi, 2014).

Although, after the former Iraq regime collapsed, the regional government is start developing within consistent political situation and general order as well as with foreign

investments. Steps are followed by the Government, to countenance previous farmers to return to country fields by supplying them with subventions and grants to foster them to once over revert to farming and animal managing to assist activate these zones by supporting the farmers both financially and technically with the aims of restoration of the agricultural industry as a main part to the modern autonomous region, and is directing numerous types of support into the agricultural area (Invest Group, 2013).

Yet, it still cannot be seen as perfect, the rain-fed addicted cultivation is seriously affected by rainfall and in other hand, the oil and gas manufacture. According to authorities there is presently 44% of the region touched by oil firms and over 51 km² of farm field has been occupied by international firms. Yet, this amount excluding from the private refineries owners which are estimated to be more than 200 illegal refineries operating in the Region and over 80% of these refineries don't own suitable licenses and don't satisfy global norms, but somehow still illegal refineries let to operate-poisoning the atmosphere by fatal gases like hydrogen sulphide (H₂S) And other oil left-which mainly located in the Erbil province (Pour, 2015). Therefore, in order for the research to fulfill its aims it seeks to evaluate the distribution of some refineries, in selected regularly-consumed food crops and soils from an oil-polluted active agricultural farmland and making comparisons with a view to health implications.

This study will focus upon, legal Acts, statistical facts, evidence and political debates in order to conclude whether such issues can be justified or not. The study will also aim to analyses and clarify the efficacy of the present agriculture regime governing and the oil industry in the Erbil by using GIS 10.3 and GPS.

1.3. Structure of the Dissertation

The historical contexts of both Iraq and Erbil will be briefly introduced in order to give the reader a comprehensive understanding of the geography of Erbil, as well as considering some key historical of farming and political issues in the area.

This chapter highlights the locations of theses refineries are currently exist Erbil, and highlights their features. It goes onto question how far the agriculture being affected and also comparing the product rate of the past and after the establishment of this large numbers of refineries in the mentioned area.

This chapter will present several legislative recommendations for those oil companies and both legal and illegal refineries operating in the North Iraq and specially in the Erbil province for the purpose of this study. It will consider possibilities for the future, and comment on the potential hazard for the agriculture in the area. Drawing on examples from other regions, such as Nigeria, Azerbaijan and other relevant cases. There will also be discussions as to how far such experiences can affect the Iraqi nation, particularly in the resolution agricultural. Finally, the paper will attempt to reach conclusions around the issues, of distribution of oil and gas refineries, in the farmland of Erbil Province and its impacts on the agriculture and the legitimacy of Iraqi laws. The author will offer a viewpoint based on the evidence that has been provided.

1.4. Aims and objectives

The dissertation will seek to explore the issues oil and gas refineries upon agricultural lands of Erbil province of Iraq, in respect of establishing oil and gas manufacture, particularly in Erbil territories. A further objective of this work is to consider the distribution of the refineries around the Erbil area in the farmlands and their consequences via description and analysis, to reach a conclusion using different modern technologies to achieve accurate and precise results. To conclude the effect of oil source research on subsistent farming, physical environment and communal life. As well as to see to what extent the government and oil companies' struggles have diminished in reducing the difficulties created as an outcome of oil source research in the host communities.

Attitude a literature review of policy developments relative to internationally, focusing on known thematic researches, and the underpinning reasons for the improvements. The overarching aim of this dissertation is to gain deeper insight into the true meaning of the effecting oil and gas refineries on the farms and the legislation controlling current oil production, including how the federal government in Iraq determines which authority should deal with this issues. It is hoped that a detailed consideration of such issues will make a significant contribution to the knowledge base in this area, which remains controversial. Examine the social, cultural and economic impact on the life of the Erbil people; understand the grade of hazard done by the petroleum

industry to the environment of their area of operation and how this damage has effected the people culturally and psychologically.

1.5. Questions to be considered

Has oil and gas manufacture affected agricultural? How did the exploitation of these sources changed over time? In relation to the region's agricultural potential to what extent was output canalized at both internal and external markets and in what terms did it flourish and when did it decline? Will the North Iraq Governemnt be able to either legalize or shutdown these illegal refineries on the farmland? Is there any peaceful solution?

2. LITERATURE REVIEW

Nigeria, Azerbaijan, Kazakhstan, Israel and Iraq states are entire exemplifications of how oil issue and output may straight loss the circumambient environment. Corbettstated that although, the oil output is intentionally applied by governments and particular firms, the real loss let to the environment is not voluntary. This is a condition in which the firms could be eager to remain different conditions of energy sources; nevertheless, their whole organizations depend on oil output as a purchases of task unlike their past of farming and growing many kinds of products (Dabbs, 1996).

In the same way, the Ecuador and Nigeria conditions frankly illustrate the straight negative influence that oil output may have on human life activities in the area. Many of local clans have been removed owing to the oil search in Ecuador. In spite of more caution demands to be placed on hazard that is done to the wildlife, pollution that straight impacts the welfare of human beings must be right away struggled with (Dabbs, 1996).

The impacts that oil pollution has had on human community have guide to anti-government behaviors and uprisings in numerous sections. As a result of the damaging effect that oil output has had on the region, for the past 20 years, the goeverment have complained the government by standing oil searching and requesting claims to their own territories. On the side, the condition has led a lot of Ogoni people to protest the facts of government in Nigeria (Pyagbara, 2003).

There are also political rebellion stemming from ecological worries. Marxist partisans have stopped oil output through terrorist behaviours in Columbia; likewise Mr Najar mentioned in the North Iraq attacks carried on by unknowing people on oil sites and pipelines, as a result five engineers were killed in those attacks, which also took about 70,000 barrels per day (bpd) of oil production offline and disadvantaged the Regional Government and oil export pipeline has been down for more than 80 hours this on the Bai Hassan South facility knocked out around diffused over 1.2 million barrels of unrefined oil (Najar and Fatah, 2016). Therefore, one can easily see the effect of this large amount of oil spilt can damage both lands and environment. The interest over which oil tracks to

continue roots from the concern that the political condition or terrorism will break the pipelines in Azerbaijan and Kazakhstan. Furthermore, global disagreement extremely oil sources and areas with potential oil resources is withal a topic of fear. Disagreements over hegemony of the Falkland and Spratly Islands could have grave ecological effects in the forthcoming. The sensitive environments in both of these districts could be seriously dispersed owing to oil spills or straight assault on output in consequence of future discussing (Dabbs, 1996).

In the very status of global disagreement, a straight assault on source output is not general. Iraq itself is can be seen as a good example of oil cause of war between Iraq and kwait which resulted in huge environmental damaged and life of thousands of both armies and civilians. In the case of Kuwait, during Iraqi's control of Kuwait in the Persian Gulf War, the Iraqi government intentionally adjust numerous of the Kuwaiti oil areas on fire. In spite of global association finally place an end to the shocks, over 250 million gallons of oil discharged into the Persian Gulf and numerous kinds of animals perished in consequence of revelation to the oil or from the polluted air. Impacts of crude oil pollution on crop yield were defined utilizing stochastictranslog output function. Data were taken from 17 local government fields, utilizing multistage sampling method (Ojimba, 2012).

All of 296 surveys were appropriate to research. The outcomes indicated that the impact of unrefined oil pollution factors on crop fields lowered the size of farmland and besides impacted negatively technology entries, duration in non-polluted agriculture production raised (381,4 kg) (Ojimba, 2012).

Moreover, it is essential to analysis various available literature on the appearances of the effect of oil draft as numerous studies have been accomplished by different specialists in this section (Elvidge et al., 2009). The class of the ecological is life-threatening to the remaining and food of human asset in special and animals and plants in common. Certainly (Ufodike, 1997). Arranged ecological corruption like second to economic down, like one of the troubles the global is presently covering. Oil source handling and the refiniers which includes numerous chemical and seismic wave generations is a main

resource of environmental corruption specially owing to fluid evacuation and oil por out also gas flaring into the farmland and nearby rivers which will in this thesis will be shown in the chapters bellow have failed to supply refined petroleum products. Therefore, many elements are delivered into the environment in the route of oil output processes. Petroleum turns the poor soil, burns plants and destroys beneficial soil particulars as a result of hampering agricultural production (Omoredede, 2014). Introduces in some scientists discuss that before mineral sources are harnessed, they cross owing to the phases of research, mining and processing; varied categories of ecological harms unavoidably go with those 3 phases of mineral growth. Scientists discussions any more suggest that petroleum occurs of complicated mixtures of aliphatic, alicyclic and aromatic hydro carbons, besides polar organic composites. These parts can be altered into different materials on intake the environment (Omoredede, 2014).

The major industry in Iraq is the oil industry sectore and its can be said is the only industry which berngs outcome to the other sectore inlucuding the argriculture which used to be the opposie specially the North of Iraq which is the case study area. Loss to industry substructure like oil drilling locations, refineries and pipelines, providing intentional sabotage or conversely, transports a hazard of environmental mess and the probability that water and food sources will get polluted with crude and / or refined petroleum composites. Thus, bisde the bring incomes to the sate but also effecting environment and hurge affected argriculter by oil installation fires, effective plumes pollutant and disturbing smoke, stand for other possible risk to human health and the ecologic goods as well. Considering to the Minister of Environment Qutaiba al-Jubury the ministry will work to quarrel pollution by implementing methods for monitoring, control, sensing and the practise of powerful repressive operations, fight pollutants that scare the ecological and public health intercalarily agriculture and farmlands (Direct, 2015).

2.1. A Brief Historical Record of the Iraq and Erbil people

This chapter is aimed to briefly review the historical contexts of both North Iraqi people and history of farming in area, from their establishment to the present day, with particular focus upon historic milestones in the foundation of farming trade and oil gas industry in Erbil as a capital.



Figure 2.1. The map of Erbil, Iraq

Erbil Region occupies the north and north-eastern sections of Iraq (Figure 2.1.). As shown in (Figure 2.2.). this region is neighbour of some countries (Iran to the east, Turkey to the north, Syria to the west, and the rest of Iraq to the south). North of Iraq has an area of 40,643 km² and is inhabited by a population of 3,307,058 (Figure 2.3.). Erbil is the capital city of this region.



Figure 2.2. The map of north part of Iraq

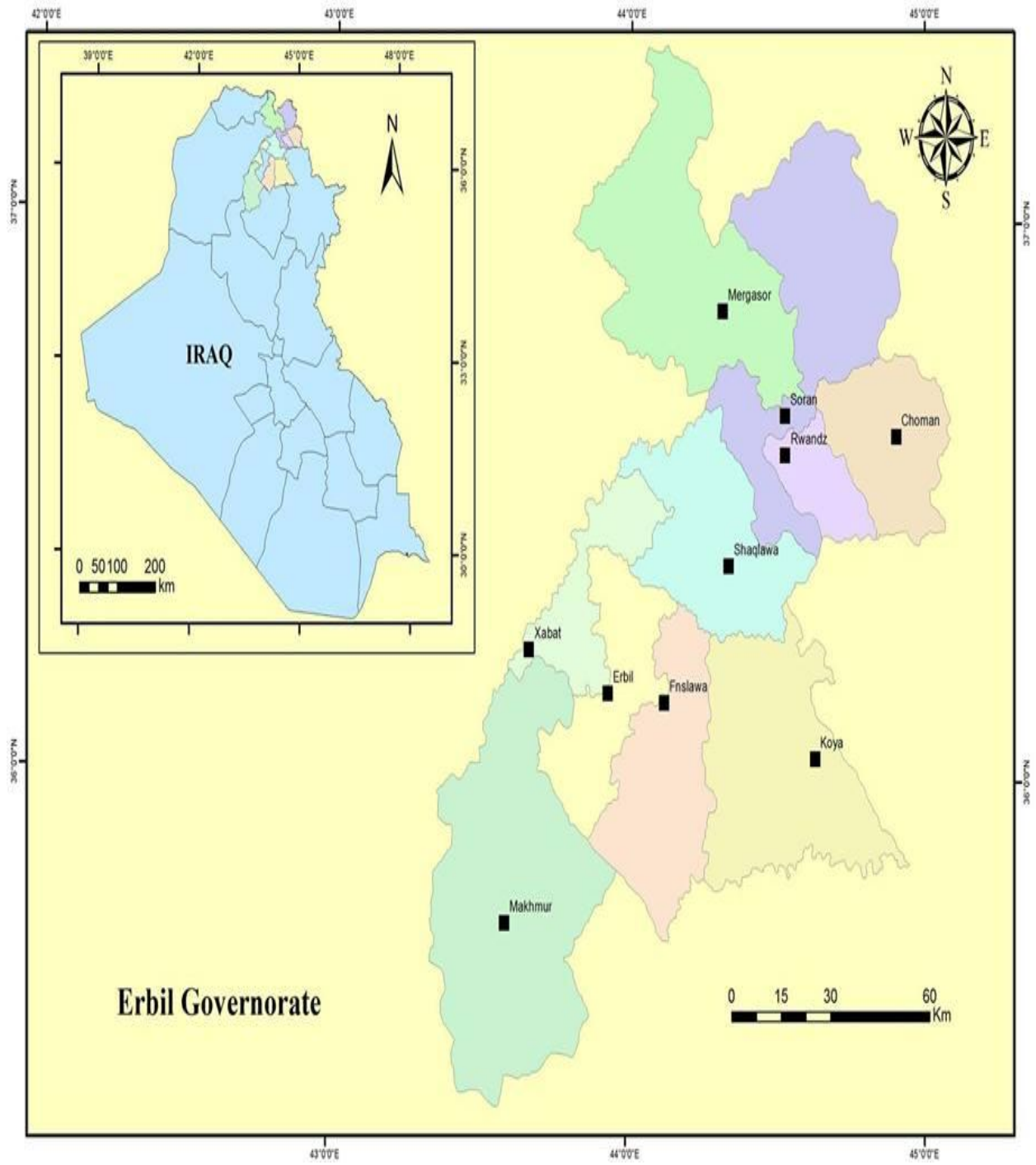


Figure 2.3. The map of inhabited areas

Erbil can be said, is one of the most ancient city in Iraq, is also one of the bases chosen for the establishment of the new Iraqi government due to its considerable political, economic and social diversity. Erbil as a capital city of North-Iraq, is stands upon land previously known as: Urbilum, Arbaelo, Erbil or Hewlêr besides agricultural life (Figure 2.4.). Thus, consequently, definitions and usage of the territory have changed and evolved over time. The geographical location of Erbil is, located roughly 350 km north of Baghdad and 80 km east of Mosul. Its governorate has a permanent population of roughly 1.61 million as of 2011, the fourth biggest city in Iraq after Baghdad, Basra and Mosul. Erbil is one of the most ancient city in Iraq and the oldest city in the world that people still live in urban life in Erbil can be dated back to at least 6000 BC and it is one of the oldest continually inhabited cities in the global basis. At the middle of the city is the ancient citadel of Erbil, which is estimated to be close to 7000 years old. Inside the citadel, you will find beautiful traditional rugs and textiles at the Erbian Textile Museum. The citadel also offers great views over the city, as can be seen from the (Figure 2.5.)



Figure 2.4. Old image of Erbil and the farmland surrounded



Figure 2.5. Three different stage of Erbil

2.2. Historical and agricultural record of Erbil

For many years, the Region was known as the “Bread Basket of Iraq” not only to it’s region. A great variety of grains and vegetables have traditionally been grown in the region, with wheat and barley among the most common (Dowall, 1996). However, as a result of the policies of the prior period in Erbil, agriculture in the Region saw only limited growth, owing to the long years of fighting and military occupation of their towns. Which caused many of these rich farmlands turned to dry land the output has not reached the past high levels. Yet, beside agriculture the areas the local governemnt takes responsibility for, and Erbil in particular are valuable in natural resources for exploration and production including oil which will be considered further in section below

3. MATERIAL AND METHODS

3.1. Analysis and discussion

This chapter intends to examine the impacts of both government and the Private Oil Refineries, and will attempt to evaluate the impact by taking samples of water, soil and environments in the mentioned area and comparing by the standard with reference to the experience of other countries as well as pointing out their place by using GIS system. It than will go on to comment on the impact of such issues, including the place of Private Oil Refineries within this, and will end by highlighting the most recent developments MNR's laws in this regards.

Although in today's sociality many countries in the world depending on the output or the trade of oil to fuel their economies. Yet, these actions may reason heavy hazard to the ecological and agriculture, either intentionally or impulsively. Oil output, and or carriage, may disturb human and animal life in the section. Oil mess dumping, output pollution, and spills wreak have come the circumambient natural environment. It overhages the quenching of numerous vegetables, and has besides damaged several lands, agriculture, air and fish (Dabbs, 1996). As shown in (Figure 3.1.). There are many refineries in this area.

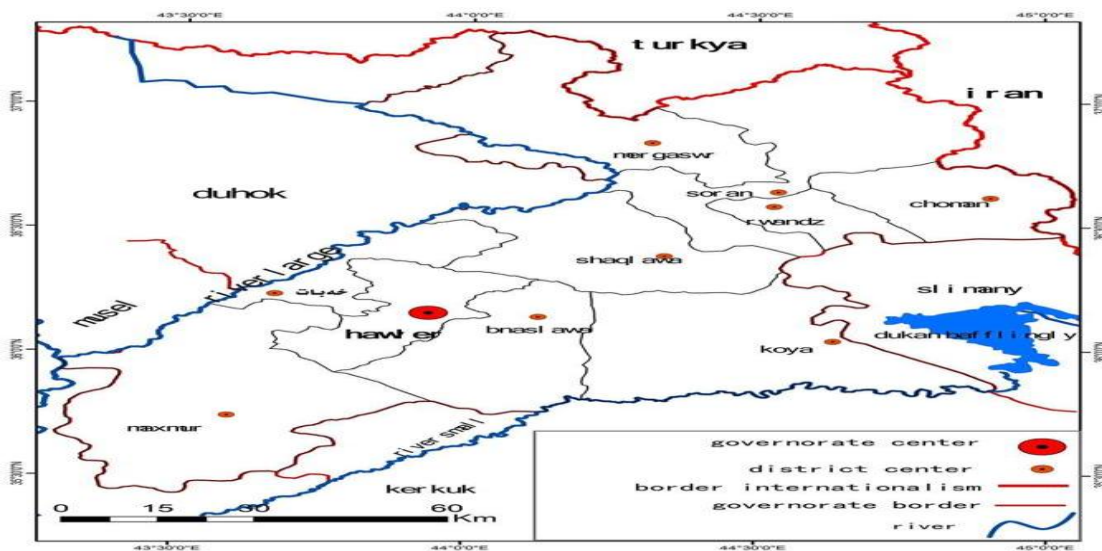


Figure 3.1. Map of the refineries

Thenceforth, oil and gas has been both a trouble to the generality of regional occupants and a consecration to the oligarchs. The oligarchs have showed their enthusiasm for search to more oil and auction it off without taking discreet preventions to provide that people concerns are screened (Frynas, 2000).

3.2. Petroleum development

A soon after the drop of Saddam's government, the the North Iraq Government gave a privilege to Genel Energy in July 2002. This was traced by other royalties to global oil firms like DNO, Genel Enerjy, Petoil for oilfields like Tawqe, TaqTaq, Shakal, Polkhane, and Erbil. Iraqi Constitution Article 111 (2005). Which clearly defines that all oil and gas is owned by everyone of Iraq, it does not particularly mention, people like Kurds. In addition Iraqi Constitution Article 112 (2005). As mentioned earlier; it states that 'the federal government and local governments shall together formulate the essential strategic policies to improve the oil and gas wealth in a way that achieves the maximum advantage to the Iraqi people. Besides Iraqi Constitution Article 115 (2005). Which is also important, as to the oil and gas law 22 of 2007, the North Iraq Parliament passed the Oil and Gas Law, giving the Ministry of Natural Resources the competence to debate and agree to long-term oil contracts. As a result at the moment there are over 35 companies from 20 different countries have signed exploration and development contracts with the Region (Muhamad, 2016). However, the concessions granted lack enough measures to keep the the North Iraq's environment and the reliability of the workers an people living close the areas – to avert discomfort and developing their goods. In addition to the generality of the oil firms' social and ecological liabilities that are determined in the royalties are ragged by the Natural Resources Minister (NRM).

Apart from, all of the above mentioned companies, there are currently, besides more than 200 refineries working in the Region; because of their membership with the oligarchs, else acknowledged as politician officials, more than 80 percent of them do not possess suitable licenses and do not supply global norms, and yet still they let to operate – poisoning the air with fatal gases like hydrogen sulphide (H₂S) And different oil mess (Group Invest, 2013). There is presently 44% of the region touched by oil firms and over

51 km² of agricultural field has been occupied by international firms and private refineries owners – cantilevered by the government and without any indemnity, while article North Iraq Parliament Article 29 of Petroleum law of the region essentially prohibits the utilize of special properties by the oil company (Muhamad, 2016). The maps bellow indicates the private oil refineries, their locations within the Erbil province (Figure 3.2.). Map of small refineries in Bnaslawa (Figure 3.3.). And Makhmur (Figure 3.4.). Some images of the refineries (Figure 3.5. and 3.6.)

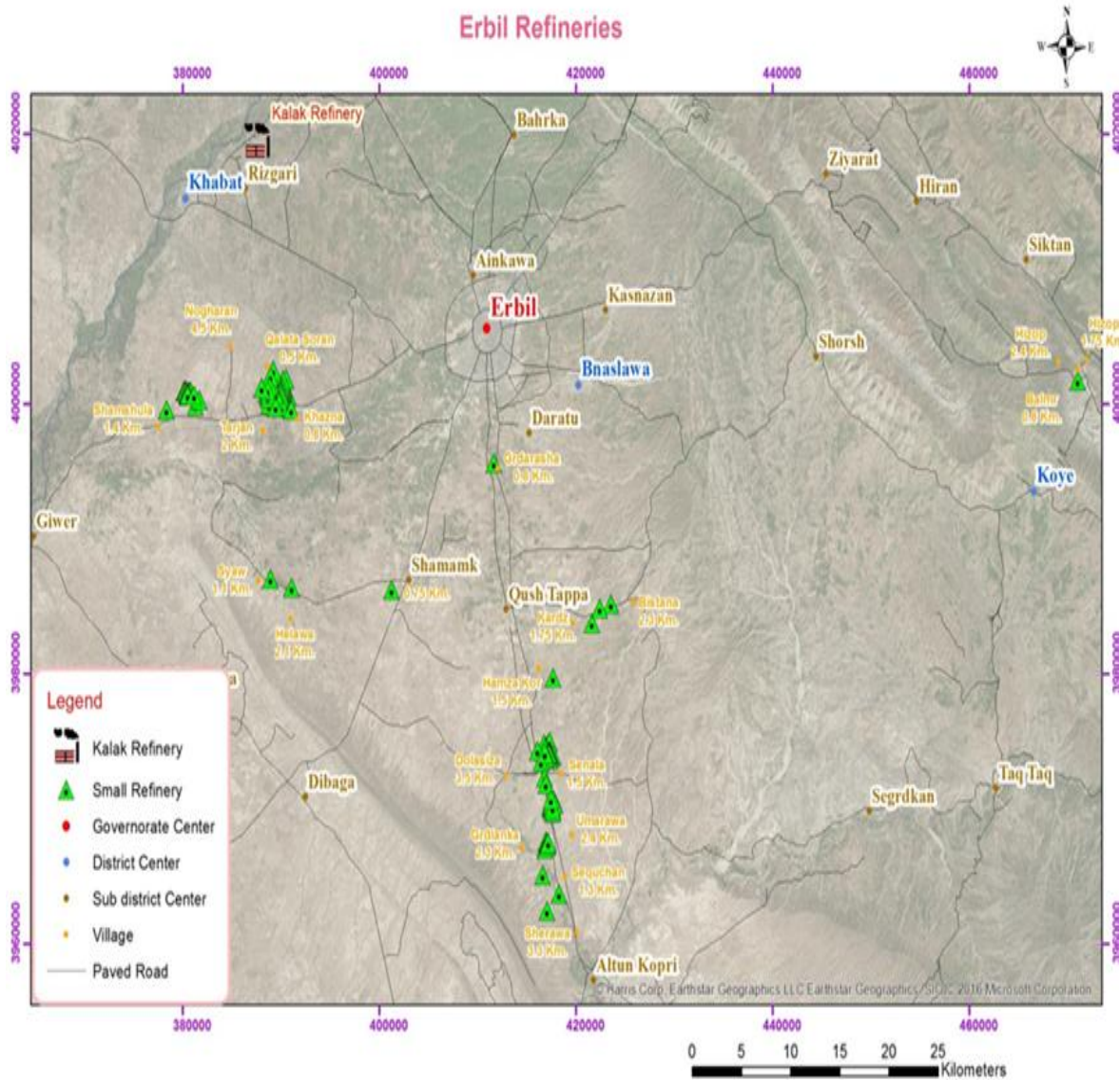


Figure 3.2. Map of the small refineries in Erbil

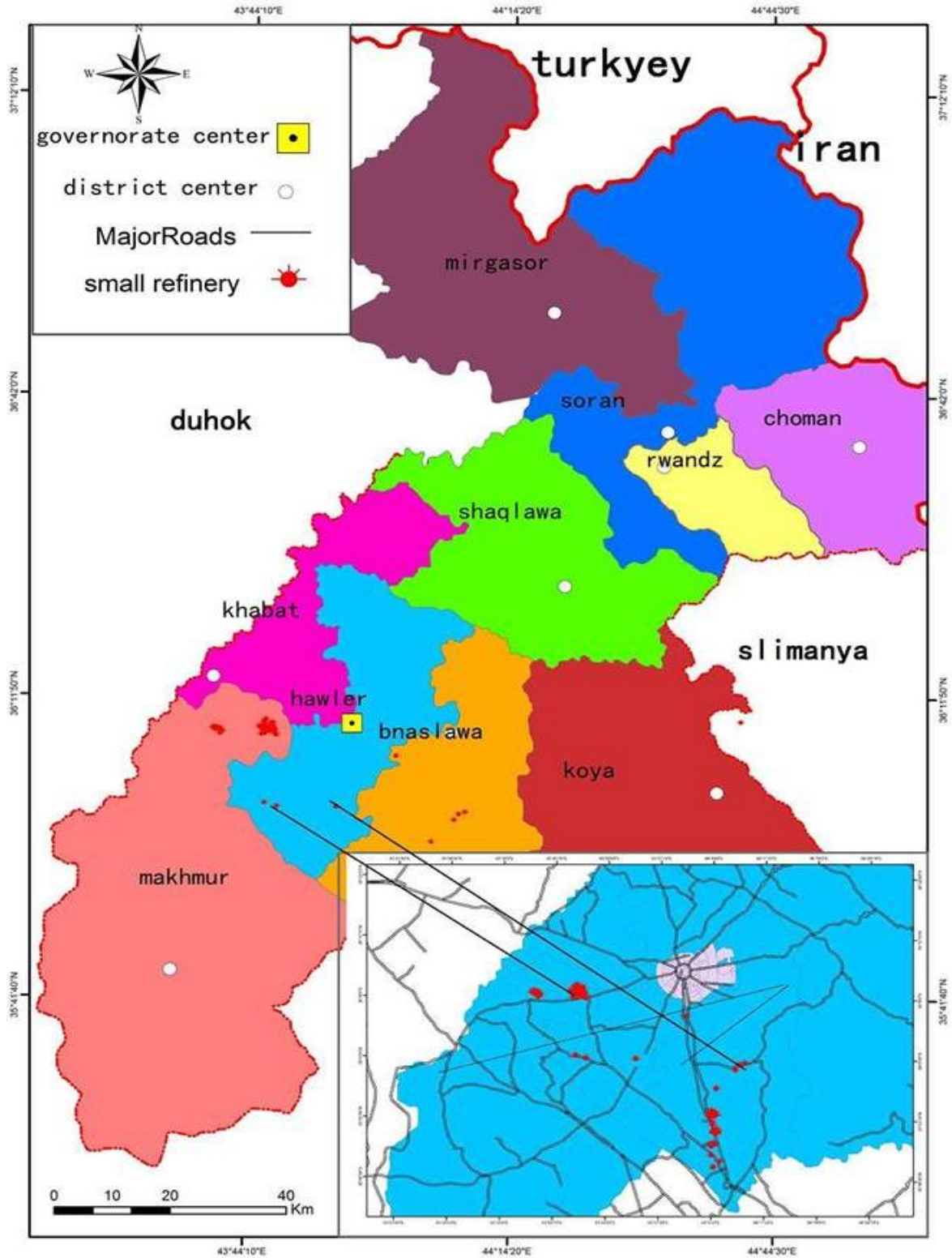


Figure 3.3. Map of the locations of small refineries in Bnaslawa

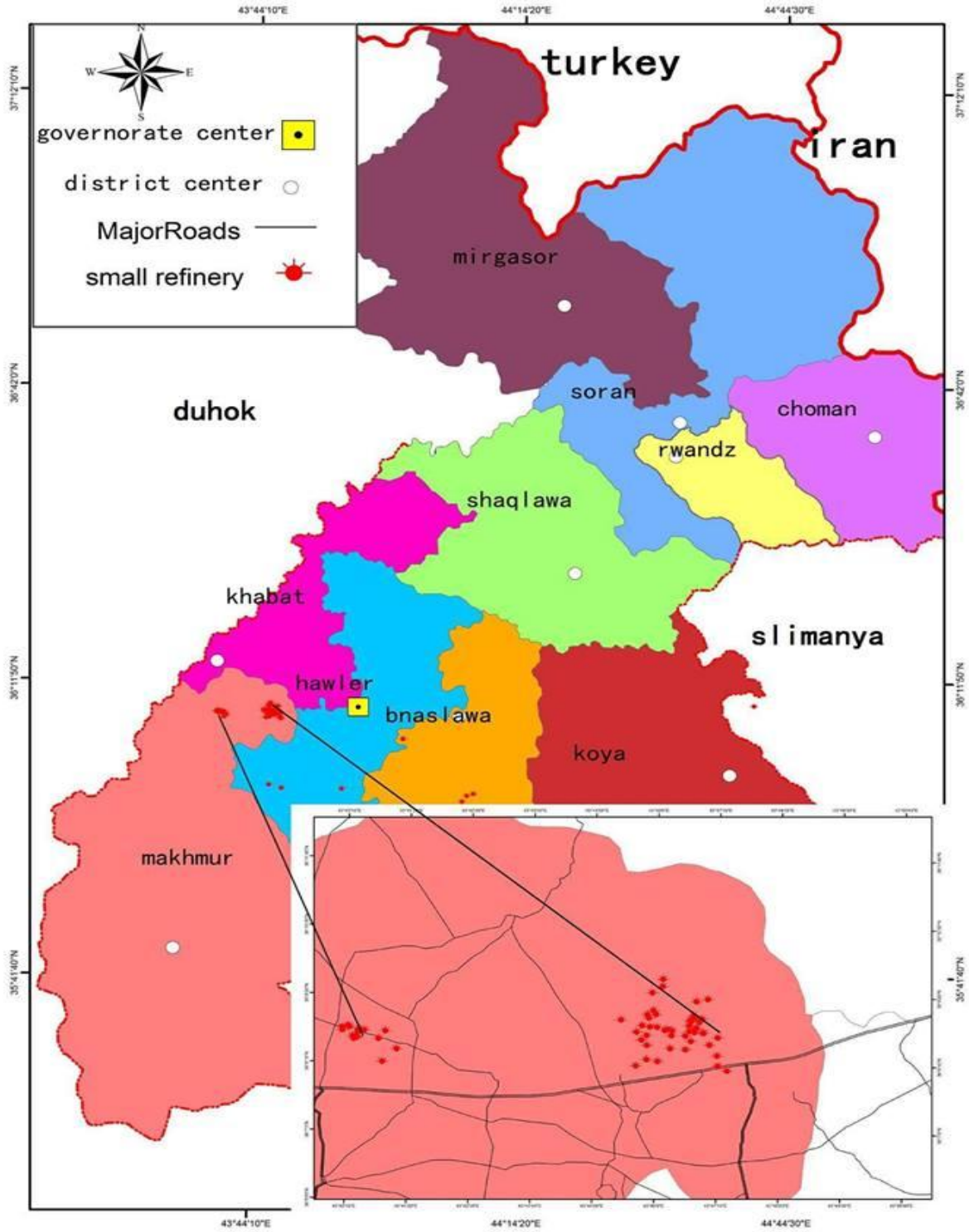


Figure 3.4. Map of the locations of small refineries in Makhmur



Figure 3.5. Image of a refinery



Figure 3.6. Image of a refinery

3.3. The type, area, and percentage of lands of the seismic area

The major land use types like agricultural field, barren land, range land, built-up area and water bodies was undertaken as shows from Table 3.1.

Table 3.1. Distribution of land use in area

Type of Land	Area (km ²)	% of Total Area
Agricultural	64	14,6
Forest	8	1,8
Barren	142	32,3
Built-up	36	8,3
Range	142	32,3
Water	47	10,7
TOTAL	439	100

The classification map was then utilized during the site visits to corroborate and validate the findings. The land here is rain-fed agricultural field yielding a total crop/one year. Usually, field of seismic region occurs of limited cultivated areas but non inhabited hillsides utilized to sporadic livestock grazing. Plants found in the field contain wheat and barley, along with summer and winter plants (Anderson, 2001). Results are tabulated in Table 3.1. And the Figure 3.7.

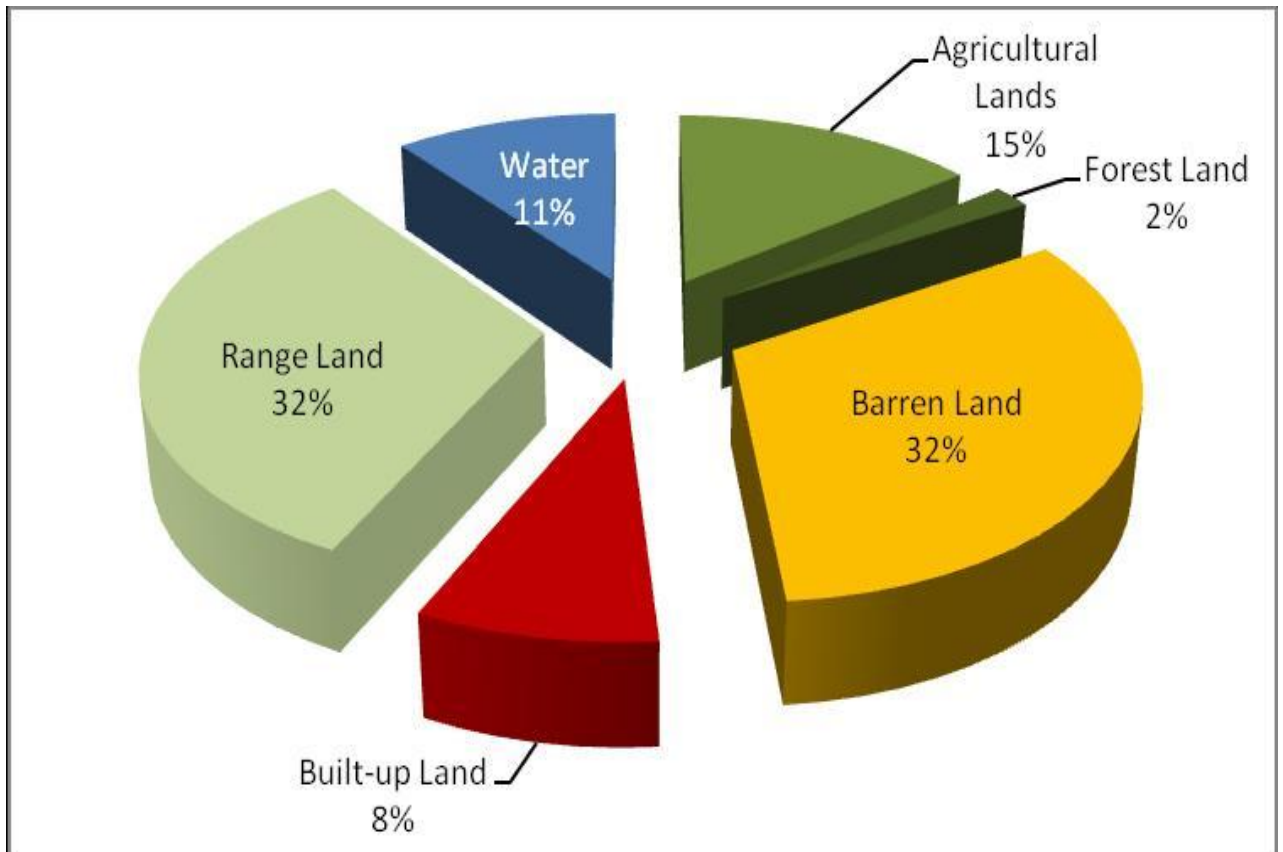


Figure 3.7. The types of the land in the research area

3.4. Problem around the private oil refineries

Government recently penalized 21 of the refineries for violating environmental protection laws but because of their affiliation with the oligarchs, or politician's officials the process so difficult to combat such issues although Article 29 of Petroleum law of the region are meant to supply that those touched are properly satisfied, and same Article 29 clearly prohibits the utilize of special properties by the oil firm.

Hydrocarbons for instance Oil spills are a main threat to the environment as they numerously hazard the surrounding ecosystems. Since crude oil is lighter than water, it shaves on the top of water. Oil spills on ground pose a three-fold threat: fire hazards, groundwater pollution owing to percolation, and air pollution owing to evaporation. Oil refinery processes activities frequently result in incremented loading of hydrocarbons in environment (kenrods Oil Services, 2016).

The natural skills of the environment to distil the hydrocarbons become overwhelmed and the following effect on the surrounding contains, but is not limited to: oils adhere to and ruin algae and plankton, feeding and breeding of water life is toched, aesthetics is touched by sheens. From the current field survey, in addition to the unintentional spills of crude oil close to the refineries, it seems that oily sludge – hydrocarbon wastes are created in extraordinary amounts by the oil refineries around the, which creates environment problems such as water, land and air pollution. It was noted that theses oil refineries have no plans, concerning oily sludge management tactic to operate the oil sludge's like straight forward touch to dump the oily sludge into especially constructed pits (Dabbs, 1996).

Taking an example form Kalak refinery, which is the biggest one and located in Erbil province and close to the river as shown from the map (Figure 3.8.).

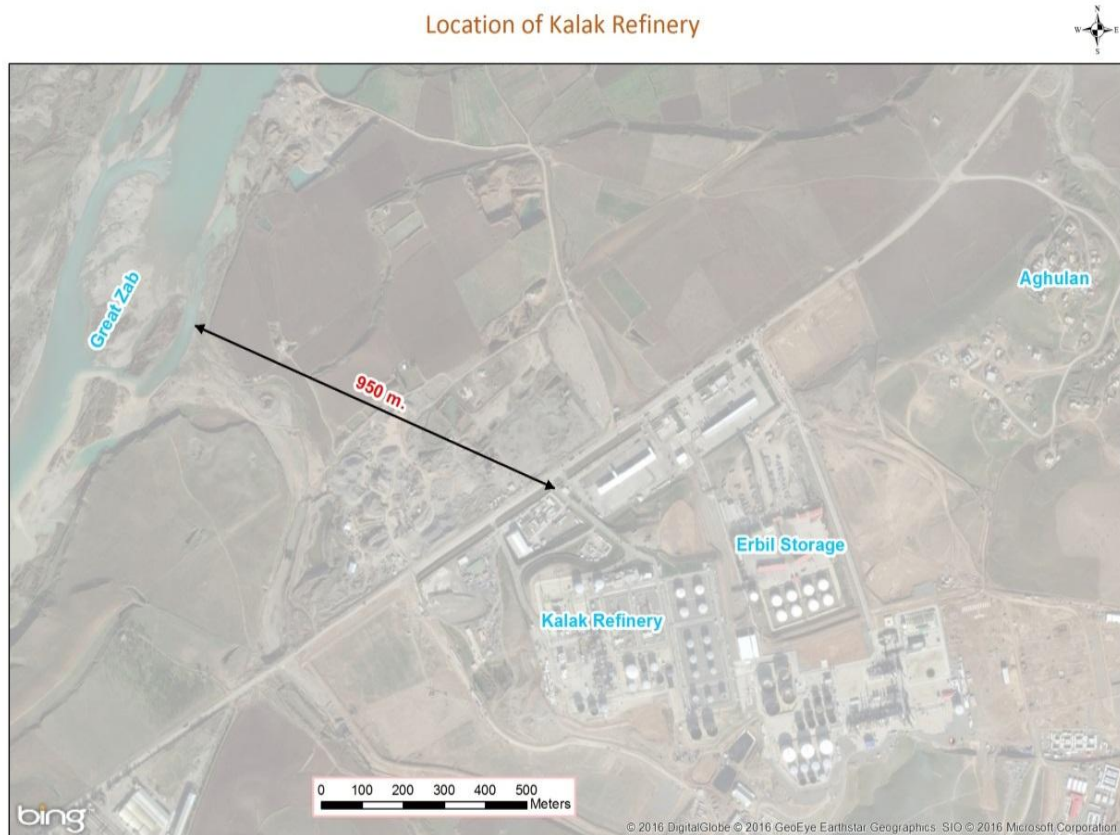


Figure 3.8. Kalak Refinery

The Refinery is located in Khabat area, at Kawrkosek, 40 km west of Erbil, and it occupies a land of 2.5 km² to the left of upper Zab River which this area used to be farmland and productive area. At the moment the refinery breeds the following Oil products: Naphtha, Kerosene, Gasoil (Diesel), Fuel Oil, Gasoline and Liquid Gas (Alamdar, 2010). These outputs are filled and distributed in storage tanks and then transported through loading stations by tankers, which is could be seen as a key factor of causing oil spills from the refiners to the land.

Unrefined oil may be discharged by tankers on ground. In water areas, the spill consists owing to drilling rigs, offshore oil platforms and well. Oil spills and impacts of them may also be practised with refined petroleum or even waste oil from big dial industries. What is general in all of them is that the hazard caused by them is permanent and takes aextensive time to clean up. Oil spill may verify deadly for plant, animal and human life (Grean Stay Grean, 2016). The substance is very toxic that it may cause serious loss of species that live in the sea. Although the people regard towards oil spills has grown in the past 20-30 years, yet, its happening for over a century (Grean Stay Grean, 2016). Since the future of the industrial reform, like crashes have been event. The deliver of a liquid petroleum hydrocarbon into the environment, specially marine areas, owing to human activity, and is a condition of pollution such as mentioned refinery, whereoil is delivered into the river or coastal waters, butspills may further consist on land below pictures (Figure 3.9. and 3.10.) Clearly demonstrate that their impacts has taken on much importance (Davis, 2015). This is because when an oil spill consists, it rises a multitude of issues to environment and people. The bellow pictures can be seen as a good example of how the damages are severe to the society and the lands.



Figure 3.9. Damage of refineries



Figure 3.10. Damage of refineries

3.5. Water samples and results

The nature of the study area lends itself to form a boundary of the surface water basin where the rainfall flows to the plains in the north. The generated runoff then flows in the natural surface drainage channels and form streams, parallel to the common geological structure NW-SE direction.

Water samples were collected at three different locations around the refinery site. The water samples at indicated locations were analyzed for hydrocarbon contaminants; TPH (total petroleum hydrocarbons) And TOG (total oil and grease), following Standard Methods recommended by US EPA SW 846/8270 B, Infra The water quality was detected in comparison with the World Bank norms. The self-explanatory photograph below show (Figure 3.11) The choosen sites for water sampling and chemical analyses throughout the mentioned area (Komet Group, 2015). Analysis results are shown in Table 3.2.



Figure 3.11. The collection of water sample

Table 3.2. Water analysis results around the DD-TLS site (exceedances of the criteria limits are bolded)

S.N.	Parameter (Mg/L)	PQL	WB Standarts	Result		
				W1	W2	W3
1	TPH	0,5	0-<1	25,8	14,3	23,7
2	TOG	0,5	0-<1	12,1	23,5	12,2

3.6. Water analysis

Above displays the analysis results of the water samples taken from three different locations on closer rain fed valleys to the DD-TLS area. World Bank Standards for Water Quality Parameters is used for comparison and evaluation of results. Generally, the results showed significant elevated values for both TPH and TOG (Komet Group ,2015). The cause of these elevated parameters is due to local sources and/or from upstream inputs for example from Private Oil Refineries.

3.7. Impact on underground water

A critical danger sit by oil concerned pollution is the effect on underground waters. When oil spills or when there is a residue discharge or acid rain, it seeps into the ground and happens combined in the underground water framework. It has been attributed that polluted underground water get several years before it may be fixed. Still, this underground water acts into streams and wells which are the just resources of regional water offer in the society which conclusions in the rise of water borne diseases (Modibbo, 2016). This has influenced the conventional relation of human beings with water.

Additionally the pollutants presented into environment from searching and exploitation processes, refinery expends withal have features which create possible ground, water and air pollutants. The elimination of contaminants into the water from oil tablshments has straight impacts on fish stores. The most threathening apperance of oil staining is that rise in comprise of specific diseases that were before mysterious in the

region. It has been noticed that there is association between revelation to oil pollution and the improving of health troubles.

In a new investigation delivered by a bunch of scientists from the Department of Dams and Water Resources Engineering, College of Engineering, Salahaddin University–Erbil, Iraq it was found that water samples gathered (Figure 3.12 and 3.13.) From the sea, river in the region (Figure 3.14.), Indicates than Petroleum refinery residuals are contaminants originating from industries firstly connected in refining crude oil and manufacturing fuels, lubricants and petrochemical intermediates. These residuals are a grand source of aquatic environmental pollution. Petroleum refinery wastewater comprises different amounts of hazardous pollutants and over 44% of the water in the includes a chemical named (Benzo) Pyrene, with a big concentration of 0.54 to 4 ug/L, highly above the World Health Organisation (WHO) Advice of 0.7 ug/L for drinking water (Aziz, S. 2016).



Figure 3.12. Taken water samples



Figure 3.13. Taken water samples



Figure 3.14. Satellite image and self taken for the study area

3.8. Road conditions and traffic density

Beside oil spills the heavy makes has damaged the entire road and though out the region and has already alerted states od normal ordering people to travel including heavy tanker traffic which already alerted polluted and mischievous to environment is the possible flooding of refineries on the seaside plains of the area. The existing road network at projects sites is the main purpose of transporting worker and hardware to the project site (Gunasekera, 2010). The situation of existing roads replaces substantially throughout the seismic area from fine asphalt paved highway, to high class and low class gravel roads, and downs to mess roads in bad situations (Figure 3.15.). The high traffic volume and poor road situation calls for specific safety matters to the seismic crew (Petroleum,O. 2014).



Figure 3.15. Erbil main raod toward Kalak area

Consequently the agriculture zone has fallen since the 1990 and is underperforming. According to Abdulsattar Majid the Minister of Agriculture and Water Resources in North Iraq Government, the agriculture budget in North Region has never been sufficient and over the last fifteen years, agricultural output declined by a mean of 1.1 percent per year, and per capita agricultural output dropped by around 3.9 percent per year. Productivity of the major cereal plants wheat, barley and rice has fallen intensely (Xalid,G. 2015). Most of the country's food necessity is imported while once agriculture was a staminal component part of the North economy, a region that was once named the "bread basket of Iraq". Since 1980 indicates differences between 200,000 and 600,000 ha for cultivation field and between 400 and 1,300 kg/ha for output.

The real whole yield ranged from 120,000 to 650,000 tons. Since, oily sludge – hydrocarbon wastes, which sourced from these refineries are discharged directly into closer valleys, hence hydrocarbon spills, where ever recorded along temporal rain fed valleys toward Refineries area and beyond. Micro-organisms demanded for crop nutrition is redirected to oil corruption (Xalid,G. 2015). Minister SerwanBaban introduced figures about the present farming output and the goals to reach. The output of oat, corn, sunflower, red meat, milk, tomatoes, grapes, apples and different vegetables in 2011 was below 50 % of the asked self-sufficiency for the Region and require to be importantly increased.

Therefore, it's become clear that oil companies and the private refineries has significant effect on the agriculture in the region and specially in the case study are (Erbil) Since many of these companies and the refineries has located in this area due to the geographical land used (Lorin, S. 2012).

3.9. Comparison with other countries which are rich in natural resources

It is well known that conflict between governments also arises in other oil rich countries experiences in relation to oil management and environmental damage which directly resulted in decreasing agricultures and loss of farmland due the oil manufacture. About 70 years ago large oil sources were identified in Nigeria. Therefore, petroleum incomes have rised approximately 50 times during 1970-1979 years. Shell Oil works in

Delta part of Nigeria, as known this area includes many huge reserve of petroleum (Colonel, L. 2012).

The Ogonis, a local community that excel in the Delta section, have objected that Shell's petroleum output does not simply ruin the regional environment, also destroys agricultural productions. Government of Nigerian, however, has been blamed with unsuccessful to present and apply environmental conservation against petroleum hazard by Shell and different petroleum firms. Additionally, several Ogonis have been annoyed and moreover murdered by the government to planning objections and minatory sabotage of petroleum activities just like north Iraq government.

In a day Nigeria exports about 12 million barrels petroleum however minor native people cannot have benefit of this transaction (Jambo, 2012). Domestic people are essentially upward emasculated owing to environmental corruption from petroleum output and the lack of suitable rules on international firms. At the same time these people turn into unguarded to nutrient scarcities, health damages, area decrement, pollution, pushed to emigration and vacancy. Gas pipes have induced irretrievable hazard to fields once utilized to farming objects (Case , 2014).

Taken account above case shows that government is not any and its not the only region suffer from oil manufacture. Looking at these issues over boundaries and regions, it is evident that Iraq and the region are not the only parties in disagreement over oil production and declining of agriculture productions but their experience could be seen as a good example to enhance the Minister of Agriculture to reach its aims by investment more in the infrastructure of agriculture for asistant improve regional government physical, technical and personnel necessities to be able to raise farming output per capita in the section as well as determination links and composing farming search centre's in the section will assist professionalize the sector in the area.

4. RESULT AND DISCUSSION

Recommendations to the Government of Iraq and its region to reduce the effects of oil refineries upon agriculture. Secondly, it has been suggested that they refrain from taking further steps and issuing new oil and gas law. In addition, it is recommended that provocative rhetoric around relations, boundaries and disputed provinces are ceased. Situated on evidences of thesis researches, the following advices were accomplished:

All cruel regulations regarding petroleum, gas and land use that deport domestic human beings from attendance in the inspection and utilize of their sources be repealed or changed. The 2007 area utilize Petroleum Act of regional implemented directly upon all the ION companies and the private refineries commitment of all private oil refineries to “Oil and Gas Law of the North government – Iraq” (Law No. 22) - 2007/ MNR and get instant attempts to restore the accurate of groups to evaluate of control on their resources.

- (1) Petroleum firms should be made to show greater regard to the application of judicial statements on their actions. Accordingly, the provincial authorities must obtain more technical strategy and detailed data as well as implementing the laws or even making new laws in order to improve the situation.
- (2) Every precaution must be taken by closer oil refineries to avoid spillages of hydrocarbons and chemicals on soils to avoid deterioration of surface and groundwater quality and danger to soil microbial populations in soils which are sensitive to hydrocarbon.
- (3) All private petroleum refineries require a good design oily sludge operation tactic to amange oil sludge. A straight forward touch can be discharge oily sludge into extraordinarily structed holes. Since the probability of leak cannot be ruled out, the optimal sludge hole should associate leaching fluid gathering framework and a polymer lining to avert the infiltration of pollutants into the groundwater. Like holes are not only costly, but also necessary in great numbers for an individual refinery.
- (4) Since there is a limit to the land existing inside a refinery, other helps for the disposal of oily sludge have to be sought.
- (5) The following measures must be taken by closer oil refineries to DD-TLS to reduce the impact on the environment: Minimize area extent of site space, by staying within

the described boundaries; Waste oil from refineries or different mechanism must be intercepted and manually gathered and stocked in a paved offered residual petroleum preservation section; ensure immediate containment and clean-up of any spillages; and minimize the spread of hydrocarbons, supply the tools to identify the most convenient response strategies, protect fine areas and to mitigate negative impacts (Report, Middle. 2016).

- (6) Onward each extra part of input utilized in plant fields decreased plant output and no additional agricultural field planted diminished plant yield because of the negative impacts of unrefined petroleum pollution, this thesis proposed wide academic rehabilitation programmes to polluted agricultural area in Rivers. The North government should not see oil as only economic resource to rely on and seek alternative to it such as improving agriculture by supporting farmers financially and tactically. As the Agriculture Minister Mr Majid stressed financial support, designating a good budget, and establishing a correct policy for agriculture are universal standards. At least, the primary food requirements of our residents should be provided internally, "It should be considered a national duty to pay more attention to agriculture so that closing the borders, for example that of Iran and Syria, won't affect our citizens," he also added last year the ministry did not allow farming crops that were available locally to be imported, which according to Majid. "This decision resulted in an amount of 100 billion incomes during the last eight months of the previous year (Xalid, G. 2015).

Certainly the citizens have to compensate for the financial shortcomings of the farmers. agriculture needs to be as big a priority as the oil and gas industry agricultural industry can the region be stable especially regarding food security if all other industries fail and also will be beneficial for the environment and for creating jobs. This is most vital since the region is expected to lose an additional 50k more jobs by the end of this year according to the North Government Iraq Council of Ministers. Finally the cases mentioned in the previous Chapter highlighted the fact that some societies are rich in natural resources like oil and their expenses could be seen as good example in order to improve agriculture activities

5. CONCLUSION

This dissertation has looked at resource that has negative effect upon agriculture in Erbil provenance but with particular focus on the oil refineries issues. Throughout this dissertation, it has been established that the oil and gas manufactory, including legal and illegal refineries has negative effect on farms and the farmers. In unrefined petroleum polluted agricultural field demonstrated powerful negative (decreasing) Returns to scale in physical entries, petroleum pollution factors, their coaction periods and total approximative rates. These outcomes indicated that unrefined petroleum pollution on field decrease the size of agricultural field existing, thus effective production; further touched negatively pretty much all technology entries they interacted with, for this reason creating decrease in plant yield. These results confirmed the negative and harmful impact of crude oil pollution on plant growth and as expected yield.

It could be observed from the above that the externalities of oil extraction have ensued in deep contrary effects on conventional lifestyles in Erbil society where uncontrolled petroleum discovery and exploitation had taken place almost for the last two decades. The petroleum firms has not in any way helped emphasis as they proceed to disregard environmental rules in their lands of processes and pay less notice to environmental conservation systems that would have helped to reduce petroleum pollution. The government on its section has not represented no promise to pushing the mininum environmental rules which it composed.

Based on the obtained results, and comparing with the standards the wastewater that resulted from the refineries contained high levels of pollutants and the quality at mixing point with the treated to the health of the people and they are already affected since the surrounded ground water sources were lightly polluted. These outcomes approved the negative and harmful impact of unrefined petroleum pollution on plants yield. This means that area was more prolific in clear lands than in unrefined petroleum polluted lands of the government. The outcomes of technical performance in unrefined petroleum polluted fields demonstrated that the decreases more than 22% of the plant of agriculturalists which makes it clear that crude oil pollution and the refineries have significant negative affect on agriculture. Petroleum firms should be made to show

greater regard to the application of judicial statements on their actions. Accordingly, the provincial authorities must obtain more technical strategy and detailed data as well as implementing the laws or even making new laws in order to improve the situation. Every precaution must be taken by closer oil refineries to avoid spillages of hydrocarbons and chemicals on soils to avoid deterioration of surface and groundwater quality and danger to soil microbial populations in soils which are sensitive to hydrocarbon.

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APPENDICES

APP.1.

ناونیشان	سیسټه می دیاریکردنی شوین (GPS)
یان نزیکنترین شوین	
ریځگای گویر نزیک کارگهی شیش	(X 390775)(Y 4000029)
ریځگای گویر تعینشت پالوتگهی سردیار	(X 390795)(Y 3999707)
ریځگای گویر پشت پالوتگهی سردیار	(X 390556)(Y 4000371)
ریځگای گویر پشت پالوتگهی سردیار	(X 390794)(Y 4000606)
ریځگای گویر میدانی پالوتگان	(X 390372)(Y 4000746)
ریځگای گویر پشت کارگهی شیش	(X 390398)(Y 4000781)
ریځگای گویر پشت کارگهی شیش	(X 390136)(Y 4000772)
ریځگای گویر پشت کارگهی شیش	(X 390156)(Y 4000863)
ریځگای گویر پشت کارگهی شیش	(X 390191)(Y 4000910)
ریځگای گویر پشت کارگهی شیش	(X 390279)(Y 4001116)
ریځگای گویر پشت کارگهی شیش	(X 390349)(Y 4001193)
ریځگای گویر پشت کارگهی شیش	(X 390280)(Y 4001092)
ریځگای گویر پشت کارگهی شیش	(X 390517)(Y 4001812)
ریځگای گویر ناوچهی پالوتگان	(X 390195)(Y 4001745)
ریځگای گویر ناوچهی پالوتگان	(X 390143)(Y 4001229)

رینگای گویر ناوچهی پالوگان	(X 390115)(Y 4001307)
رینگای گویر ناوچهی پالوگان	(X 390019)(Y 4001152)
رینگای گویر ناوچهی پالوگان	(X 390047)(Y 4001118)
رینگای گویر ناوچهی پالوگان	(X 389988)(Y 4000987)
رینگای گویر ناوچهی پالوگان	(X 389997)(Y 4000806)
رینگای گویر ناوچهی پالوگان	(X 389879)(Y 4000660)
رینگای گویر ناوچهی پالوگان	(X 390029)(Y 4000490)
رینگای گویر بهرامبر کارگهی شیش	(X 391051)(Y 3999552)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 389883)(Y 4000228)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 389444)(Y 4000265)
Zangal(رینگای گویر تنه‌نشت مستودعی)	(X 389087)(Y 3999861)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 388775)(Y 3999918)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 388499)(Y 4000787)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 388635)(Y 4000543)
رینگای گویر ناوچهی پیشهسازی (پالوتگان)	(X 388786)(Y 4000371)
رینگای گویر بهرامبر گوندی قادریه	(X 388882)(Y 4000951)
رینگای گویر بهرامبر گوندی قادریه	(X 389079)(Y 4000941)
رینگای گویر بهرامبر گوندی قادریه	(X 388786)(Y 4000682)
رینگای گویر بهرامبر گوندی قادریه	(X 389301)(Y 4000844)
رینگای گویر بهرامبر گوندی تهرجان	(X 389376)(Y 4000875)

رینگای گوئیر بهرامبهر گوندى قادريه	(X 389501)(Y 4000835)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 389487)(Y 4000672)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 389053)(Y 4001346)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388980)(Y 4001470)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388808)(Y 4001343)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 389245)(Y 4002224)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 389256)(Y 4002456)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388948)(Y 4002028)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388851)(Y 40001230)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388659)(Y 4000991)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 388065)(Y 4001173)
رینگای گوئیر پشتت کارگهی شيش	(X 389474)(Y 3999722)
رینگای گوئیر شهمامر/گوندى قاوغ	(X 381309)(Y 3999872)
رینگای گوئیر شهمامر/گوندى قاوغ	(X 381714)(Y 4000268)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 380344)(Y 4001012)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 380179)(Y 4000965)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 380190)(Y 4000872)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 380381)(Y 4000967)
رینگای گوئیر بهرامبهر گوندى قادريه	(X 380401)(Y 4000838)

رینگای گوئیر بهرامبهر گوندی قادریه	(X 380661)(Y 4000908)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380474)(Y 4000679)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380807)(Y 4000860)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380623)(Y 4000801)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380597)(Y 4000636)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380507)(Y 4000593)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380585)(Y 4000659)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 380551)(Y 4000630)
نزیك بازگهی گوئیر	(X 3878387)(Y 3999528)
رینگای گوئیر بهرامبهر گوندی قادریه	(X 381207)(Y 4000594)
رینگای كمر كوك بازگهی كونی گرده رش	(X 411677)(Y 3995578)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 416769)(Y 3974774)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 4117061)(Y 3974707)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 4117321)(Y 3974956)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 416976)(Y 3974468)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 417443)(Y 3974029)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 417389)(Y 3973810)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 417692)(Y 3973966)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 417485)(Y 3973941)
رینگای كمر كوك قوشتهپه/دولمبكره	(X 417577)(Y 3973862)

رینگای کمرکوک قوشتپه/دولمبکره	(X 417198)(Y 3973809)
رینگای کمرکوک قوشتپه/دولمبکره	(X 417210)(Y 3973830)
رینگای کمرکوک قوشتپه/دولمبکره	(X 417123)(Y 3973859)
رینگای کمرکوک قوشتپه/دولمبکره	(X 417367)(Y 3973629)
رینگای کمرکوک قوشتپه/دولمبکره	(X 416996)(Y 3973670)
رینگای کمرکوک قوشتپه/گوندی کمردز	(X 421639)(Y 3983736)
رینگای کمرکوک قوشتپه/گوندی کمردز	(X 423571)(Y 3985164)
رینگای کمرکوک قوشتپه/دولمبکره	(X 422442)(Y 3984814)
رینگای کمرکوک قوشتپه	(X 416869)(Y 3974442)
رینگای کمرکوک قوشتپه	(X 417361)(Y 3974038)
رینگای کمرکوک قوشتپه	(X 417334)(Y 3973988)
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رینگای کمرکوک قوشتپه/پشت بغزینخانهی ناکو	(X 416861)(Y 3974068)
رینگای کمرکوک / سیناره	(X 416485)(Y 3973417)
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رینگای کمرکوک / سیناره	(X 417401)(Y 3970317)
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رینگای کمرکوک / گوندی گردنکه	(X 417083)(Y 3967509)
رینگای کمرکوک / گوندی گردنکه	(X 416973)(Y 3967245)
رینگای کمرکوک / گوندی گردنکه	(X 4166881)(Y 3967020)

رینگای کمرکوک / گوندی گردنکه	(X 417143)(Y 3967317)
رینگای کمرکوک قوشتپه/دولمبکره	(X 417198)(Y 3967468)
رینگای کمرکوک شینخانه	(X 416627)(Y 3965062)
رینگای کمرکوک گوندی شمزیناره	(X 418318)(Y 3963670)
رینگای کمرکوک گوندی شمزیناره	(X 417066)(Y 3962419)
رینگای کمرکوک قوشتپه/سیناره	(X 417503)(Y 3970670)
گوندی دوسره پشت و بستگهی کارهای همولیز	(X 401270)(Y 3986203)
بهرامبر گوندی عملیاه	(X 391089)(Y 3986362)
گندی سیوه	(X 388949)(Y 3986994)
هیزوب	(X 471097)(Y 4001695)

CURRICULUM VITAE

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EDUCATIONAL BACKGROUND

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Work Experience

Airbil Air port, Governemnt employee	2011-2012
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COMPUTER AND PROGRAMS SKILLS

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LANGUAGE SKILLS

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