



*Drivers and obstacles of agriculture development in Libya : Case study : Marine aquaculture.*

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**Drivers and Obstacles of Agriculture Development in Libya**  
**Case study: Marine Aquaculture.**

**Masauda Abdularhim Abuarosha**

**A thesis submitted in partial fulfilment of the requirements of**  
**Sheffield Hallam University**  
**For the degree of Doctor of Philosophy**

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## Abstract

Agricultural development was a key priority of Libyan government, major resources being allocated to it during the period 1970-2010. Policies were put into a series of explicit statements of targets. Fish farming was identified for development, specifically to meet targets for animal protein production. This research clearly shows that agricultural policy and fish farming specifically as failed under all the measures considered. The literature review identified a number of potential causes which were developed into a conceptual framework that has been applied to the case study of fish farming.

Fish farming has been chosen as a case study to investigate the causes of agricultural policies failure, as it allows the natural challenges facing agricultural development such as climate and topography to be isolated because of their insignificance for fish farming and the focus to be directed to the political and economic issues.

The research clearly shows that agricultural development was hindered by a number of political and economic issues. The issues identified were; availability of oil revenue and the corruption associated with the ruling elite has had a negative role in agricultural development process, in terms of high dependency of on oil, and government ignoring of improving productivity led to emergence of the Dutch disease symptoms in agriculture sector; the continued domination of public sector, that was characterised by poor economic performance, has had a negative impact on development process in terms of mismanagement and spread of corruption. Political ideologies, in particular the aim of realizing self-sufficiency, were a political propaganda which served the personal targets of ruling elite, rather than a sound basis for economic development.

The key contribution to the knowledge was the understanding of how the issues identified in the conceptual framework integrated together to create the political and economic environment where agricultural policies will fail. What researcher has done analyse how these different factors have interacted to cause the failure of policies. From this understanding of process key lessons can be learnt by other countries facing the potential dangers of mineral wealth interacting with political systems that create the opportunity for wide scale corruption and inability for critical review of government policies.

This work is dedicated to the soul of my Mother

To my family

My husband Abdalsalam

My children

Bushra, Basma, Hafiz, and Sageda

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## **Abbreviations**

ADB	African Development Bank
AOAD	Arabic Organization of Agriculture Development
BTI	Bertelsmann Transformation Index
CIA	Central Intelligence Agency
CBL	Central Bank of Libya
CAADP	Comprehensive Africa Agriculture Development Program
EGA	Environment General Authority
EIU	Economist Intelligence Unit
FRD	Federal Research Division
FAO	Food and Agriculture Organization
GAI	General Authority for Information
GPC	General People's Congresses
GCP	General Council of Planning
GDP	Gross Domestic Product
IMF	International Monetary Fund
IUCN	International Union for Conservation of Nature
LD	Libyan Dinar, the national Libyan currency.
MMR	Man Made River
MBRC	Marine Biology Research Centre
MNA	Mediterranean North African
NAMC	National Agricultural Marketing Company
NDI	National Democratic Institute
NOC	National Oil Corporation
NSD	Nation Statistics Division
NEPAD	New Partnership for Africa's Development
OECD	Organization for Economic Co-operation Development
OPEC	Organization of the Petroleum Exporting Countries
UNEP	United Nations Environment Program
UN	United Nations
WFP	World Food Program
WTO	World Trade Organization
UNESCO	United Nations Educational, Scientific Cultural Organization

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# **Chapter One: Introduction**

## **1.0. Introduction**

This chapter defines the drivers and impediments to agricultural development and specifically identifies the context of agricultural development in the country which forms the case study of this research, Libya. In this discussion particular attention is paid to the topography, location, climate, natural resources, the population and the culture as well as the political perspective that influenced the social and economic spectrum in Libya. It also introduces the aims and propositions of the research

## **1.1. Research Aims and Rationale**

Historically, agricultural development and economic development have been closely linked (Johnston and Mellor 1961). Agricultural development was considered as one of the components of a comprehensive plan of economic and social development; it was viewed as the first crucial step towards broader development, reduction of poverty and food insecurity (Norton et al. 2006). In many developing countries, poor agricultural performance has produced negative effects on food self-sufficiency and food security (Beaumont and McLachlan 1985). The development of the agricultural sectors meant a sustained increase in economic growth and economic development (Alyabis 2011).

In Libya, food self-sufficiency was one of the main objectives in the development of the agricultural sector and the formulation of government policies in this sector. Libya aimed to be self-sufficient in the main agricultural food products, which contributed largely to the diet of Libya's population; consequently, there was a pressing need to develop this sector to meet the increased demand to food and to realize the target of food self-sufficiency (Egzaima 2007).

Libya has dedicated much effort, over the past four decades, to developing the agricultural sector. Over this period, (1970-2010) about 200 million LD was earmarked for this purpose (CBL 2009) (Otman and Karlberg 2007); this money was mainly spent on carrying out a range of agricultural and rural development programs and activities

which entailed the reclamation and development of land, and the implementation of many agricultural projects. These programs aimed to reduce the gap between production and the growing demand for food (Larbah, 1996). Despite the huge efforts exerted on agriculture, they seem to have fallen short with respect to realizing the key targets of the sector, namely, food self-sufficiency and reduction of the role of oil, according to relevant figures and statistics published by the General Authority for Information (GAI) in different years. Recent statistics for Libya reported an increase in food imports to the extent that they accounted for more than 75% of the total food necessities (GAI 2009). Furthermore, these statistics reflected the low growth rate of the sector and the low average contribution to Gross Domestic Product (GDP) in relation to the levels of investment pumped into the sector.

Generally, since Libya gained independence in the early 1950s, it has continuously pursued development (Vandewalle, 1998). Although development processes were not clearly identified during the first decade following independence, due to the extreme poverty that characterized Libya at that time (Allan, 1973), with the discovery and export of oil in the early sixties, social and economic development began to take place in all activities throughout Libya. Along with the existing oil wealth, the change in the political and economic context of Libya during the last six decades has affected the realization of long term goals for inclusive economic and social development (Edwik 2007).

Porter (2006) and Otman and Karlberg (2007) argued that despite the high level of national income, which derived mainly from petroleum exports, considering the small Libyan population, the Libyan economy, apart from the oil sector, was undeveloped. Moreover, in spite of the continuous increase in government spending on development plans in the non-oil sectors, their productivity and contribution to the national income was inconsiderable. Although government priorities differed over the course of time, depending on the political and economic conditions, the level of spending was constantly increasing. Ghanem (1985) observed that this contradiction between funding and performance lay in the fact that there was always money available to spend. The continuing investment in growth and development was also associated with the continuation of low growth and productivity in vital economic sectors such as agriculture.

The agricultural sector was one of the economic sectors targeted by the development planners in Libya, whether by the government of the United Libyan Kingdom<sup>1</sup> or by the government of the Jamahiriya<sup>2</sup>. Tens of billions of LD have been spent on agriculture during the last six decades, but the actual status of the sector reflects the shortcomings of the development process. This leads us to consider the issue of why the agricultural sector failed to realize the targeted development and growth, and therefore failed to achieve self-sufficiency in most production sectors in spite of the high levels of government spending.

Growth in agricultural production, with its three main activities (plant, animal and fish production), remained very low (Larbah, 1996), and its share in the GDP declined year after year. Whilst Alkhomsy (2008) stated that fish farming had received significant attention from the Libyan government since the seventies, Algaud (1996) argued that fish farming had received less attention than other vital agricultural activities such as irrigation, cultivation and animal husbandry. Nevertheless, it is possible to say that it has received considerable financial support, especially during the first stages of providing the necessary infrastructure. In comparison to the other agricultural sectors, fish farming has been characterized by very low productivity and weak growth (ADAO 2009).

Alkhomsy (2008) argued that the continual decrease in the number of farms since the seventies, the low annual production figures, the poor contribution to the GDP, as well as the reported lack of improvement in the fish farming sector, indicated that the fish farming sector was one of the weakest of the agricultural sectors. Despite millions of dollars being pumped into the sector, the government's development plans for fish

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<sup>1</sup> United Libyan Kingdom: On 24<sup>th</sup> December 1951, Libya declared independence as the United Libyan Kingdom, a constitutional and hereditary monarchy under the rule of King Idris, and this lasted until 1969.

<sup>2</sup> Jamahiriya: In 1977, Libya officially became the "Socialist People's Libyan Arab Jamahiriya", There were two branches of government under this name. The "revolutionary branch" comprised Revolutionary Leader Qaddafi, the Revolutionary Committees and the remaining members of the 12-person (Revolutionary Command Council). The second sector, the Jamahiriya branch, comprised Basic People's Congresses in each of the 1,500 urban wards, 32 People's Congresses for the regions, and the National General People's Congress.

farming failed to achieve their goals and, indeed, the fish farming sector was considered the worst performing of all the agricultural sectors. Hence, this research examined:

❖ The failure of agriculture development in Libya in the context of oil wealth and prevailing socio-political culture, through an in depth investigation of the failure of the marine fish farming sector.

Considering the general issue above, the research attempted to provide answers to the following more specific research question:

❖ Why has the marine fish farming sector failed?

This question would be answered through the literature review and primary research which would use the marine fish farms as a case study to explore in depth the obstacles that hindered the development process and led ultimately to its failure.

Propositions underlying this research were that the success of any development depended on the success of the economic policies and systems related to that development, a suitable political environment, and the constant availability and efficient use of the financial resources required to implement the development plans. These propositions can be summarized in terms of three drivers that have determined state policy towards agricultural development:

- The availability of oil as a non-renewable source of revenue and the ways of exploiting it,
- adoption of a large number of economic planning criteria, the main one being public sector domination of the state's establishments,
- and the political ideologies of the ruling elite that represent the concepts and beliefs of Qaddafi

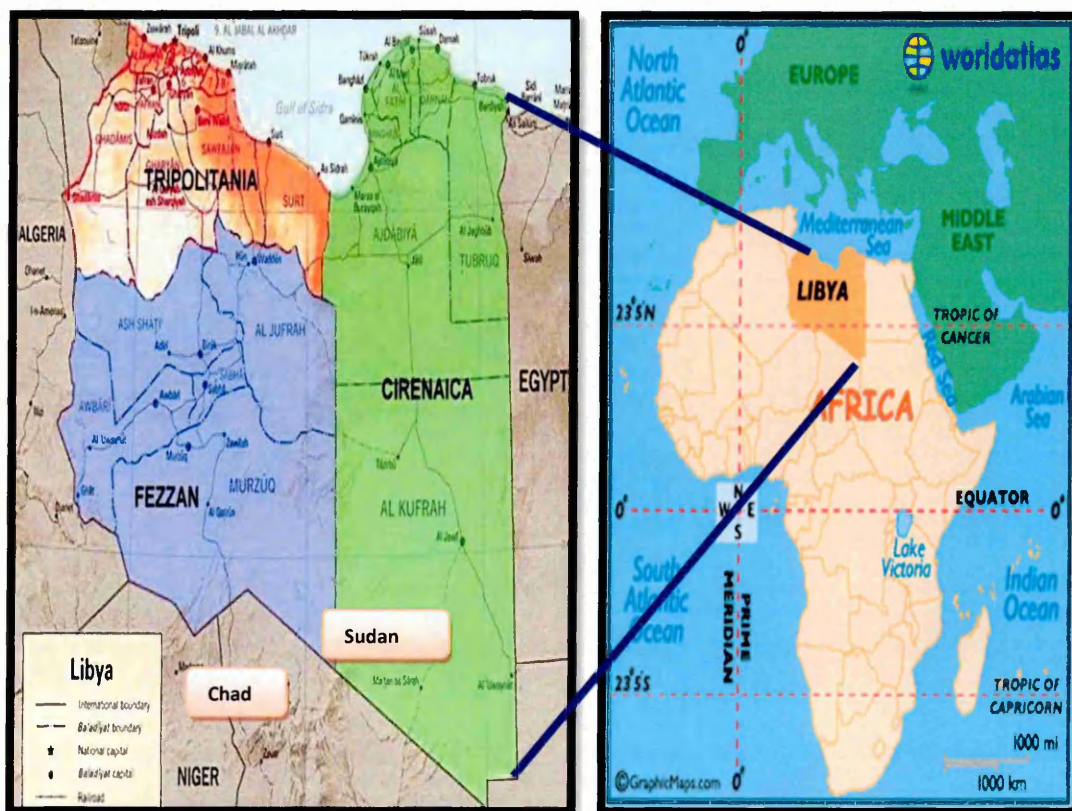
From this perspective, it was useful to review economic and political transition in Libya since the 1950s and to identify the key drivers involved in the acceleration of development. First, the Libyan economy was examined as a whole, highlighting similar worldwide applications; then, focus turned to agricultural development, exploring whether there were other factors that related specifically to agriculture rather than to other sectors. This approach allowed a more objective review of the factors that have affected the growth and development of marine fish farming.

## 1.2. General Background on Libya

### 1.2.1. Location

The Food and Agriculture Organization FAO and World Food Programme WFP (2011) reported that Libya is a Mediterranean country located on the North of Africa, within the Arab and Muslim world, with a total area of 1,790,540 Km<sup>2</sup> (about 685,500 square miles). It has borders with Egypt (1,115 km), and Sudan (383 km) from the east, Algeria (982 km) and Tunisia (459 km) from the west, and Chad (1,055 km) and Niger (354 km) from the south. To the north, Libya has a coastline on the Mediterranean Sea, extending for about 1900 km, with a continental shelf area reaching about 63,595 Km<sup>2</sup>, with depth of about 200 m (Alkhomsy, 2008). Libya comprises three main regions: Tripolitania to the west (where the capital Tripoli is located, along the Mediterranean coast), Cyrenaica to the east (where Benghazi, the 2nd largest city is located) and Fezzan to the south (where the city of Sebha is located) (Sharaf, 1974).

**Figure (1.1): Libya's location, regions and borders<sup>3</sup>:**

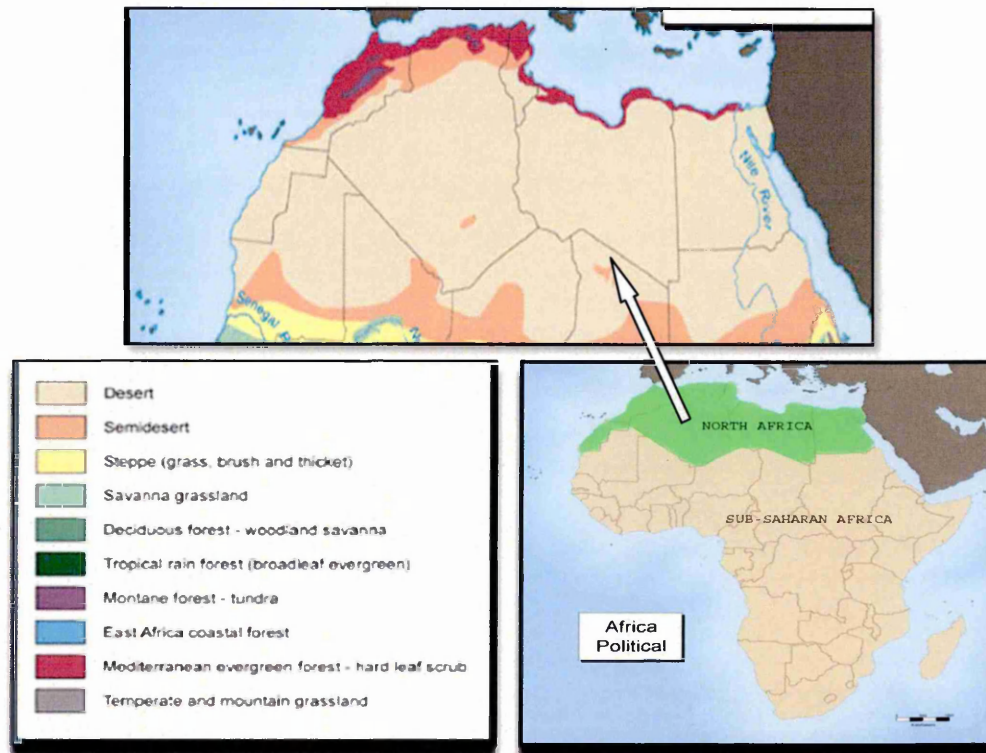


<sup>3</sup> <http://www.worldatlas.com/webimage/countrys/africa/ly.htm>

### 1.2.2. Topography

In general, the Mediterranean North African (MNA) countries exhibit two main types of topography: in the North there are coastal plains, plateaus and mountains, and in the south, semi desert and arid desert. Despite the recognized similarities in the topography of the countries in this region, there are many distinguishing topographic features; for example, the Atlas Mountains in Morocco, Algeria and Tunis, and the Nile River in Egypt (Hillstrom and Collier, 2003). The United Nations Environment Programme (UNEP) and the Environment General Authority (EGA) (2008) recognized four types of topography in Libya:

**Figure (1.2) Mediterranean North Africa topography<sup>4</sup>:**



#### 1.2.2.1. The Coastal Plains

This area extends along the sea coast; it mostly ranges between 5 and 25 Km in width, extending to about 100 Km to the west of Libya to form the Jefara Plain.

#### 1.2.2.2. The Mountains

<sup>4</sup> Exploring Africa

<http://exploringafrica.matrix.msu.edu/teachers/curriculum/ml6/activity1.php>

There are two main areas of low sandy and rocky mountains, surrounded by plateaus: Nafusah Mountains in the north west and Alakhdar Mountains (Green Mountains) in the north east. Both rise to a maximum of 1,000 m and are characterized by narrow and steep valleys towards the coast. Libya's highest mountain is the Tibesti, in the southern desert.

#### **1.2.2.3. The Semi Desert**

This area is located just to the south of the mountain areas and extends as far as the sandy desert. It is considered a transition area between the mountain and the desert.

#### **1.2.2.4. The Desert**

This type of topography makes up most of Libya's land; there is a mix of sandy, rocky and volcanic desert. More than 90% of Libya's land was desert and semi-desert.

### **1.2.3. Climate**

The Mediterranean and Sahara are the dominant influences on Libya's climate, resulting in an abrupt transition from one kind of weather system to another. According to the FAO (2005), Libya's three climatic divisions are:

- 1- Mediterranean climate along the coastal strip, with warm to hot, dry summers and mild to cool and relatively wet winters.
- 2- Highland and plateau climate in the Nafusah Mountains and Alakhdar Mountains, with warm summers, cold winters and higher rainfall, including snow on the hills.
- 3- Desert climate in the south to the interior, pre-desert and desert, with torrid temperatures and large daily thermal amplitudes. Rain is rare and irregular and it diminishes progressively towards zero in the south.

#### **1.2.3.1. Rainfall**

The average annual rainfall varies from extensive to rare according to season and topography. It has been measured as between 150 ml to 350 ml per year in the coastal

area, with the highest rainfall, at 600 ml per year, in the areas of the Alakhdar Mountains and Jefara Plain, and the lowest, at less than 10 ml, in the south. The rainfall mostly occurs during the winter months, from October to March (Alghraiani 1993; Pallas 1980).

#### **1.2.3.2. Temperature**

The lowest temperatures are recorded in December and January. From February until the early or the mid of July, the temperature increases gradually. The highest temperatures are recorded at the end of July and in August. In the coastal areas, average temperatures are between 23 °C and 25 °C. In the semi- desert, average temperatures are between 25 °C and 28 °C, whilst maximum temperatures in the desert areas exceed 30 °C. The high temperatures experienced in the coastal area decline at altitude in the hills. In summer time, the coastal temperatures near sea level sometimes exceed 43°C, while in winter time temperatures can fall to freezing point (Jindeel, 1978).

#### **1.2.3.3. Winds**

Prevailing winds are from a north-easterly direction in the north west and are north-westerly across the rest of Libya. Ghibli is the most commonly used local name for the main southerly wind which hits north Libya in the spring and autumn, blowing from the desert, filling the atmosphere with sand and dust and raising the temperature to about 50° C. It has been considered as the main factor in the erosion of sand from the desert to the north lands (Jindeel 1978).

The conditions of the natural environment, including topography and climatic conditions have limited agricultural activities; for example, moisture stress has resulted from the low and highly variable rainfall, whilst temperature extremes have led to short cropping seasons. Poor quality and shallow soils meant that only 1.7% of Libya's land was fit for arable farming. These were major barriers to agricultural growth, which was concentrated in the north east and west of Libya, and around small oases in the desert (GAI 2009) (UNEP 2009).

#### **1.2.4. Natural Resources**

Libya's wealth of natural and mineral resources provided the basis for many potential industrial, agricultural and tourism projects. Libya's most important natural resources were its oil and natural gas reserves. Oil export revenues have been extremely important to the economic development of the country as they represent 90% of the total revenue (Central Bank of Libya CBL 2008). Other significant resources included gypsum, limestone, marine salt, potash, and sodium carbonate (Central Intelligence Agency (CIA) 2009).

Libya has a variety of significant natural tourist attractions, including stunning landscapes, virgin beaches, green mountains with natural caves, oases, deserts. It also has remains of prehistoric civilizations dating back to the Phoenicians, Romans and Greeks, along with ancient Islamic sites; it houses five UNESCO World Heritage Sites: three of which are ruins of classical Roman or Greek cities including Leptis Magna (Denis, 2006).

#### **1.2.5. Population**

The United Nation Statistics Division (UNSD) (2010) has estimated Libya's population at 6.294.000, with an average growth rate of 2.5%, over the past 20 years. Approximately 38.5% of the population was economically active, and most of them were involved in the administrative public sector. The population was thus fairly young, with 35% of the total population under the age of 18. However, the government depended highly on foreign workers, especially in the two sectors of agriculture and construction. This was evidenced by the number of people immigrating to Libya seeking jobs. The largest number of migrants was from Egypt (over 1 million) and from countries in Sub-Saharan Africa (1.5 million). Smaller numbers of migrants originated from Tunisia (number unknown), Pakistan (80,000), Bangladesh (50,000), the Philippines (26,000), and from Nepal (approx. 2,000) (GAI 2010).

The population density of 3 persons per square metre was considered as one of the lowest in the world. However, the majority of the total population (about 85%) were concentrated in the urban areas in the north of Libya (UNSD 2010). Libya's climate

was one reason for the spatial distribution of the population centres, and for the determination of the population movements (Danis, 2006), together with the continual flow of immigrants from the rural areas to the urban centres, seeking higher return jobs and better education.

Another reason for the continual immigration was the unequal distribution of the country's wealth, and the development programs amongst the regions (Kezeiri and Lawless, 1987). This concentration of population (Libyan and non-Libyan) in the urban areas, and the increase in standards of living generated a continuous increase in the demand for goods and food. According to Ghanem (1985), local agricultural and industrial production could not expand quickly enough to meet the growth in demand, so there was a continuous increase in total imports to the Libyan market, financed by oil revenues.

### **1.2.6. Culture and Tradition**

For most of Libya's history, the people of Libya have been subjected to varying degrees of foreign control, mostly from Mediterranean empires: the Phoenicians, Carthaginians, Greeks, Romans, Spaniards, Vandals, Byzantines, Islamic Caliphate and the Ottoman Empire (Hahn et al., 1981). These historical periods of foreign intervention in Libya culminated in Islam and Arabic becoming the main components of the Libyan culture; however, the past civilizations have left their impact on many traditions in Libya (costumes, songs, dance and cooking). The historical context of Libya has built a very various and rich culture and, over the passage of time, this has shaped and structured the current Libyan society.

Before the discovery of oil and irrespective of the small size of the population at that time (no more than two million), 80% of Libyan people lived in rural and nomadic areas. They led a very simple life, depending on agriculture for their food (Allan 1973). Traditionally, Libya was an agricultural society relying on cultivation and grazing animals, mainly sheep, goats and camels (Alan, 1973). This was reflected in the country's cuisine. In fact, though it borders the Mediterranean, fish did not feature very highly in the Libyan diet. Generally, there were four main components of the traditional Libyan diet: olives (and olive oil), palm dates, grains and milk.

Regarding the animal protein resources, Hamed (2007) pointed out that lamb meat was the main source of animal protein in the Libyan diet, followed by poultry (chicken) and then fish, whilst beef and other animal protein sources did not feature strongly. Fish was more preferred in the west of Libya, whereas in the east, lamb was preferred. She also stated that the coastal cities consumed more fish than inland cities that were far from the coast. But she found that there had been a gradual increase in the local consumption of fish in recent years.

### **1.2.7. Political Context**

In general, since Libya became an independent country in 1951, it has witnessed two main political regimes: the monarchy regime that governed between 1951 and 1969, ruled by King Idris al-Senussi<sup>5</sup>, and the Jamahiriya regime of 1973-2011, led by Mummer Qaddafi<sup>6</sup>.

#### **1.2.7.1. The Monarchy Government's Role**

Under the monarchy regime, Libya was ruled by four governments: three provincial (Tripolitania, Cyrenaica and Fezzan), and one national (Fathaly and Abusedra, 1980). Vandewalle (2006) observed that King Idris replaced the federal system with a unitary form of government in 1963. Allan (1981) noted that before the discovery of oil, the monarchy government was remarkably flexible; it accepted the views of the UN planners and the intervention of the foreign aid providers such as Britain. Although such aid was not always assured, at least it helped the Libyan economy to survive during this period before the discovery of oil. After the discovery of oil, the country's situation

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<sup>5</sup> Idris al-Senussi: also known as Idris I of Libya (Muhammad Idris bin Muhammad al-Mahdi as-Senussi 12 March 1889 – 25 May 1983), was the first and only king of Libya, reigning from 1951 to 1969, and the Chief of the Senussi Muslim order.

<sup>6</sup> Mummer Qaddafi: Muammar Muhammad Abu Minyar Al Qaddafi was the official president of the Libyan Arab Republic from 1969 to 1977 and then the "Brother Leader" of the Libyan Arab Jamahiriya from 1977 to 2011. The researcher prefers to use the name Qaddafi as the most widely known name for him amongst Libyans.

changed for the better and the government successfully established the fundamental economic and social infrastructure.

Allan (1973) and Ghanem (1985) argued that the development of the Libyan economy was concentrated on the urban areas, and this caused major migration from rural to urban areas. One immediate result of this migration was a sudden increase in the demand for food in the urban cities. This should have provided strong motivation for increasing agricultural production in response to the higher price of food, but this did not take place because of the underdeveloped state of agricultural technology at that time and also the higher profits in investment in the trade, construction and service sectors, which encouraged people to invest in these sectors rather than in agriculture. Conversely, both labour and capital moved away from agriculture; within this trend Libya's agriculture remained at a very low level of development. Due to the availability of money from oil, the consumers turned to the international markets to provide most of the food necessities.

This situation required the intervention of the government to support the agriculture sector, and the government induced property owners to put their lands to productive use and to initiate high agricultural wage policies to activate the rural-to-urban flow of labour. The government endeavoured in 1961 to provide long term agricultural loans on easy terms for purchasing agricultural land. This was intended to encourage the private sector to engage robustly in agriculture; but agriculture was not seen as an acceptable form of employment in that sector, and it began to be shunned by job seekers (Vandewalle, 2006).

Collins (1974) studied Libya's situation in the time of the Kingdom and he argued that despite the integrity of King Idris and his asceticism in power, the Senussi leadership that was predominant in the government became increasingly isolated from the political and social alliances developed in the urban areas, especially with the tremendous growth in oil revenues during the 1960s and the growth of corruption in many government sectors. British and French companies, along with other multinationals, were the actual managers of Libyan oil production, as they possessed the knowledge and technology which the Libyans lacked. If the corruption can be blamed on anyone, it is on these entities and not Idris or the Libyan people. Although the internal Libyan politics continued to be stable, in April 1963, the king abolished the federal form of government,

establishing in its place a unitary, monarchical state with a dominant central government. By legislation, the historical divisions of Cyrenaica, Tripolinia and Fezzan were to be eliminated and the country divided into ten new provinces, each headed by an appointed governor.

The change from federal government to central government generated a lack of political stability. The government was unable to take the initiative with respect to diversifying the economy to meet the increased demand, due to the heavy reliance on oil revenues and the lack of skilled and educated staff to manage the economy; hence, it was easier to rely on imports. This process led to increased inflation and unrest among the Libyan working class and the petty bourgeoisie. In combination with the spread of Arab nationalist consciousness in neighbouring countries such as Egypt, this paved the political ground for the coup by Qaddafi in 1969 (Vandwelle, 2006).

#### **1.2.7.2. The Jamahiriya Government's Role (Qaddafi and Socialism)**

Berween (2003) pointed out that Qaddafi's idiosyncrasies have affected the domestic and international policies of Libya, and it was very difficult to understand the political context of Libya without understanding the politics of Qaddafi himself. He stated that: "As for his ideology, this obviously consisted of a heterogeneous and incoherent collection of ideas, beliefs and myths which have been implemented regardless of their costs or to their consequences for the Libyan people" (Berween, 2003, p60).

In the last four decades, Qaddafi developed his political vision of the Third Universal Theory<sup>7</sup> and published it in a three-volume book known as the *Green Book*<sup>8</sup> (Bruce, 2008). The United Nations (UN) (2004, p 9) noted that "in theory; implementing this

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<sup>7</sup> Third Universal Theory: it was based on the ideas of Arab unity, independence, economic egalitarianism and cultural authenticity, with Islam at its centre. It was conceptualized on the premise that the two dominant and opposing socio-politico-economic ideologies- capitalism and communism- have been proven invalid. It rejected the class exploitation in capitalism and class warfare in communism. It sought to abolish class differences. The Third Universal Theory was the official ideological doctrine in Libya. It refers to the style of government described by Mummer Qaddafi in the early 1970s. Key provisions of the Third International Theory were outlined in the Green Book

<sup>8</sup> Green Book: was a short book setting out the political philosophy of Mummer Qaddafi; it consists of three parts, The Solution of the Problem of Democracy, Solution of the Economic Problem, Social Basis of the third international theory.

political vision would involve the total decentralization of all decision-making to the citizens themselves through direct democracy" (the people governing themselves). In this sense, political parties were illegal in Libya and "the General People's Congress"<sup>9</sup> was both an executive and legislative body of the government, although most of the decision-making power remained under the centralized leadership of Qaddafi. He theoretically planned to eliminate all central government functions and to decentralize power to the hundreds of Popular Congresses, local governmental institutions whose powers extended to education, health, industry, agriculture, and all other sectors (Vandewalle, 2006). The Federal Research Division, (FRD) (2005, p13) remarked that "in reality, Libya was governed by an authoritarian regime controlled by Qaddafi, a small group of his trusted advisers, and several relatives in the northern harbour town of Sirt, which was on the southern shore of the Gulf of Sidra. But in fact, Libya was governed by an authoritarian regime dominated by Qaddafi and a small group of loyalists".

The announced aim of the Jamahiriya government was to realize socialism, equality and the liberation of the national economy from foreign dependency (Otman and Karlberg 2007). In Libya, socialism was not invisible, it was declared in Qaddafi's belief when he announced the formal name of Libya as the "Socialist People's Libyan Arab Jamahiriya". Anderson (1986) argued that in 1973 Libya simply applied some of the most radical measures of the socialist approach, especially with regard to the private sector. Qaddafi abolished all activities of the private sector, as it was, in his view, a type of human exploitation and slavery, and he referred to business men as exploiters. He made many statements in this regard in the *Green Book* such as: "Land was the private property of none"; "the citizen in this new society secured his material needs either through self-employment, or by being a partner in a collectively-owned establishment, or by rendering public services to society which, in return, provided for his material needs"; "Allowing the private economic activity to amass wealth beyond the satisfaction of one's needs and employing others to satisfy one's needs or beyond, or to secure savings, was the very essence of exploitation"(Qaddafi 1977, p 14-15).

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<sup>9</sup>The General People's Congress: this was the national legislature of Qaddafi's Jamahiriya governance structure. It consisted of 2,700 representatives of the Basic People's Congresses. It was the legislative forum that interacted with the General People's Committee, whose members were secretaries of Libyan ministries.

Lawless and Findlay (1984) stated that Libya adopted socialism under close scrutiny, and that it was more visible in rather specific measures which were clarified through the *Green Book*. It was not just a book that presented Qaddafi's views; rather, it contained political, economic and social ideologies to guide the path of Libyan economy and society. Wallace and Wilkinson (2004) remarked that the template for social and economic development remained the *Green Book*. On the other hand, Lawless and Findlay (1984) noted that "socialism was broader; however, it has been impossible to direct Libyan development on a course close to the outline of socialism highlighted by the *Green Book* . This was partly because the *Green Book* was a confused document, and the injunctions it contained are at times quite impracticable. As a result, despite the pedigree of the authorship, the *Green Book* has had less effect on the actual economic development in Libya than one might imagine from the publicity it has been given" (Lawless and Findlay, 1984, p 244).

Ghanem (1985, p 62) maintained that "it was clear from the first declaration that big changes were coming in the way whereby the new regime has advocated socialism, more self-reliance and self-sufficiency in food". Libya moved strongly toward a planned economy, with critical changes implemented by 1973, when the public sector started to dominate all activities. By the mid -1980s, the economy was completely directed by the state, and the economic directives of the *Green Book* further strengthened the Qaddafi government's centralizing grip on the economy (Vandewalle, 2006).

In Qaddafi's opinion, improving the industry and agriculture sectors would make Libya independent, and thus realize self-sufficiency, which would eventually lead to freedom; he stated in the *Green Book* that there was "no freedom for a nation that brings food from across the sea" (Qaddafi, 1977). This statement in particular expressed the interest of Qaddafi in the policy of food self-sufficiency, and the considerable attention given to agriculture as the main tool to achieve such a policy. However, the continual decrease in the productivity of the agriculture sector, despite the increase in government spending on the sector, implies that food production under the policy of food self-sufficiency remained a political rather than an economic drive.

Vandewalle (2006) argued that Libya had a centrally planned economy as a result of the maintenance of distinct social contracts that relied heavily on a form of economic distribution which led to high levels of spending taking precedence over efficiency and

productivity. Qaddafi's relationship to terrorism, and his support of various liberation movements around the world, such as the Irish Republican Army in Europe and the most radical black factions in Zimbabwe and South Africa, and the Black Muslims in the United States (Cooley 1981), affected Libya, both internationally regarding its image as a country of terrorism, and locally through his spending of a considerable part of the national income on terrorism.

Vriezen (2004) highlighted Qaddafi's role in the Lockerbie crisis in 1988, and the disastrous consequences of this terrorist act on Libya itself, through the Security Council of the United Nations imposing sanctions on Libya, which obliged Libya to meet the requirements related to the Pan Am 103 bombing before they could be lifted. Vriezen (2004, p 1-38) argued that "Qaddafi initially refused to comply with these requirements, leading to Libya's political and economic isolation for years. The sanctions of the 1990s then exacerbated the woes of an economy that was afflicted with 30% unemployment and 50% inflation rates. The government embarked on an austerity program, freezing salaries and reducing subsidies".

After four years of UN sanctions, the losses to the Libyan economy reached \$24 billion, and the main areas of loss were energy (\$5 billion), the trade sector (\$5.8 billion), industry (\$5.1 billion), communications and transportation (\$2.5 billion), and agriculture (\$337 million). The sanctions were lifted in 2003, in exchange for Libya signing an agreement with the United States and the United Kingdom that it would acknowledge responsibility and pay compensation to the relatives of the victims of the crash (Judson 2005).

Generally, the period of Jamahiriya rule (1973-2011) witnessed heavy expenditure, in excess of tens of billions of dollars, on the development plans, especially on the production sectors such as industry and agriculture. The huge oil revenues have allowed the government to keep spending on the economy regardless of its efficiency. This supports the view that the government did not seriously work to realize the announced targets of self-sufficiency, economic diversification and economic development. Porter and his International Advisory Board Co-Chairs (2006, p 29) contended that "the overall picture emerging on Libyan economy is one of low levels of productivity, with much of the workforce idle or engaged in low-value activities and negative productivity growth in sectors other than oil and gas".

Throughout this period of change, the consistent issue was that Libya still faced the formidable challenge of overcoming the long period of centralized economic management, excessive reliance on the public sector, and heavy dependence on oil. Otman and Karlberg (2007), Alakdar (2005), Alfitouri (2004), Bruce (2008) and Vandewalle (2006) amongst many others mentioned a number of factors underlying the failure of development in Libya, the more significant of which are the strict procedures imposed on the private sector, the centralization of the role of government, the increased corruption, the mismanagement of the economy, as well as the invisible involvement of the Libyan leadership under the so-called "directives of the Leader Brother of the Revolution"<sup>10</sup>. These factors and others are elaborated later in sections (2.1.2) and (2.2.2) also (2.2.6)

### **1.2.8. Economic Context**

Zarmouh (1998) referred to the important classification which was first suggested by Higgins (1968) after the discovery of oil in the early 1960s. The economy was divided into two major sectors: oil and non-oil. Abohobiel (1983) suggested that no deal could be made with the non-oil sector as a whole, and classified the economy into five sectors: oil, agriculture, industry, construction, and services. Zarmouh (1998, p 14) observed that "classifying the economy into oil and non-oil can be justified by the existence of the dualism problem where an oil-based economy was naturally divided into an advanced oil sector and a non-advanced non-oil sector". These classifications were not contradictory; thus, it was possible to involve them both; the oil sector included oil, gas and the petrochemical industries, whilst the non-oil sector included the mining industry, manufacture, agriculture, services and construction.

In general, Libya's economic sectors could be viewed in two stages: before the discovery of oil, Libya's economy was based mainly on agriculture, which employed more than 70% of the labour force and contributed about 30% of the GDP (Allan, 1981). By 1961 the share of the hydrocarbon sector had continued to increase; it dominated the economy, especially at times of the high international oil prices. In 1970, its contribution to GDP reached 80%, and it represented an estimated 74% of GDP in 2008.

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<sup>10</sup> One of the names Qaddafi created for himself.

Thus, the development led by the state was funded fundamentally from oil revenues (International Monetary Fund (IMF) 2009). The oil sector was considered the backbone of the Libyan economy, and the fundamental fund resource for all development projects operating in all other sectors. The non-oil sectors were largely left behind, especially agriculture, which achieved very low growth and GDP share compared to the oil sector.

According to the African Development Bank, (ADB) (2009), the service sector was the second most important economic activity sector. The contribution of services to GDP reached an average of 46% in 1990-99, and an average of 25% in 2000-2008. However, the contribution of services to GDP remained below the average for MNA countries (49.5%). The contribution of construction to GDP reached an average of 7% in 1990-99, and it contributed about 4% of GDP in 2008. As a general average, manufacturing contributed around 7% to GDP between 1990 and 1999, but by 2008 it represented just a 1.2% share in GDP. Its contribution remained largely constant over the period from 1990 to 1999, constituting 8% of GDP; the agricultural sector contributed less to the economy than the average for MNA countries (12.5%). According to recent figures, agriculture contributed just 1.2% of GDP in 2008 (World Bank 2006) (ADB 2009).

### **1.3. Conclusion**

Libya is an MNA country. It is the second largest country in Africa, with total area of 1.790.540 Km<sup>2</sup>. Most of its land is desert and only 1.7% has been fit for arable farming. Also, the limited water resources have hindered the agriculture sector in Libya, despite the spread of irrigated agricultural systems in the coastal plains. Meanwhile, it has the lowest density of population amongst the MNA countries, and about 80% of the total Libyan population have become concentrated in the northern coastal strip,.

Libya has also become one of the main oil countries, ranking fourth among the OPEC states. Its oil exports constitute about 97% of Libya's total exports. This sector, including the natural gas and the petrochemical industries, has been considered as the backbone of Libya's economy. The sector's contribution to GDP has exceeded 75%, especially at times of booming international oil prices. It has dominated the whole economy, with all other sectors depending on the oil revenues to fund their development and operation. All other sectors, especially agriculture and industry, have lagged far

behind, despite the huge efforts exerted to develop them, especially under Qaddafi's rule.

The Libyan economy could be described as a planned economy whereby the public sector has dominated all activities. Also, to a large extent, the Libyan leadership adopted a socialist system. Through socialism Libya sought to develop productivity, equality and self-sufficiency, based on the ideology and beliefs of Qaddafi, particularly after his announcement of the creation of the Jamahiriya regime in the mid-1970s. He played a considerable role in shaping Libya's image internationally and nationally, politically, socially and economically. His directions and ideologies have been heavily involved in defining the priorities and drawing up policies for the national development plans. He, for example, gave top priority to the productive sectors of "agriculture and industry" in the belief that agriculture and industry would lead to self-dependency and self-sufficiency. Nevertheless, Libya's economy continued to suffer from structural imbalance due to its heavy reliance on financing by oil production and exportation, and largely relied on the public sector for management of its economic activities. The government derived its revenues from a single sector: oil. Other causes of imbalance were the negative patterns of use of economic resources, as ignorance of efficiency factors was apparent in the non-oil sector. Meanwhile, these imbalances in the Libyan economy and its reliance on a single sector led to its inability to diversify the productive base. Also, Qaddafi's political beliefs and the availability of huge amounts of money emanating directly and indirectly from the oil sector affected the whole process of economic and social development in Libya and consequently the government economic policies that determined the structure of the Libyan economy.

# Chapter Two: Literature Review

## 2.0. Introduction

The chapter aims to provide a perspective regarding the Libyan economy and Libyan Agriculture. It targets Libya's economic development during a defined period of time, starting from 1951, when the United Kingdom of Libya proclaimed its independence, headed by King Idris al-Senussi, and ending in 2010, which marked the last year of the Jamahiriya government headed by Qaddafi. The researcher decided to cover this period (1951-2010) because before 1951 Libya was, firstly, involved in the Second World War since it was under the Italian occupation, and then came under British and French administration when Italy lost the war. At that time Libya as a united country did not exist, as there were three separate countries in this region: The Republic of Tripolitania, The Emirate of Cyrenaica, and Fezzan. After 2010, Libya entered an unstable stage under the popular revolution against Qaddafi's regime. The revolution started on the 17th of February 2011 and lasted for more than eight months before it successfully brought down Qaddafi's regime. Hence, the research focuses on the politically stable period between 1951 and 2010 for the purpose of objectively reviewing and analysing economic development in Libya.

Briefly, in a period that extended over six decades, Libya underwent several political and economic changes. Economically, before the oil discovery, Libya was considered one of the poorest counties in the world, characterized by a lack of natural and human resources and dependence on external aid. However, the discovery of oil in the 1960s transformed Libya into a rich country, exploiting its resources in attempts to build a modern country. Libya at first tended to adopt moderate capitalism and a free market system. In the early 1970s, the country was converted to radical socialism and was applying a planned economy. Although several attempts have been made to liberalize the economy since the late 1980s, the public sector has continued to dominate economic activity and the country's natural resources, with centralization characterizing Libya's institutions.

Politically, Libya was ruled by King Idris for about 18 years; his rule was characterized by relative stability, despite the geographic distance between the three states that were united under a federal government. By 1963, the federal system was converted to a provincial system, the so-called (Mohafazat), after the discovery of the natural wealth of oil. However, this system could no longer continue after the dramatic political changes that were brought about by Qaddafi's coup of 1969. Qaddafi ruled Libya (directly and indirectly) for about 42 years; his rule was characterized by continued changes in the political and economic structures because of the continuous changes in Qaddafi's thoughts and beliefs. These thoughts and beliefs were the invisible hand that drew up Libya's policies, which were, in many cases, difficult to apply in practice; thus creating structural imbalance in the political, economic and social reality.

In accordance with these thoughts and beliefs, applied in Libya through the so-called Jamahiriya system, which assumes that the people govern themselves through the so-called people's congresses, the people control the nation's wealth and weapons in what has been described in the *Green Book* as "Power, wealth and weapons into the hands of people" (Qaddafi, 1977). However, the reality was that everything was in the hands of Qaddafi and his loyalists. Within the strong grip of security, this situation created an internal suppressed unrest due to the people suffering bitterly from the economic volatility, low income levels, high rates of unemployment and poverty, and the lack of achievement of accepted levels of economic and social development.

The following sections explore literature that is relevant to understanding the development of the Libyan economy in general and shed light particularly on the agriculture sector, which is the main focus of the current study. The literature discusses Libya's economic development in the context of socialist and oil rich developing countries, in addition to discussing related political ideologies. The chapter will be divided into two main sections; 1) Economic development and 2) Agriculture development.

## **2.1. Economic Development**

The objective of this section is to highlight the context of oil rich developing countries and planned economies. It is also to consider the main features and characteristics of the

economy during that time determined above, and to illustrate how the economy is affected by the different aspects of the political and economic changes in Libya. It also identifies the main forces that drive the economic development in Libya. Generally, this section illustrates the bases on which the Libyan economy was established and developed. Establishing such a base is essential for subsequent economic development.

### **2.1.1. Economic Development in the Context of a Developing, Socialist and Oil Rich Country**

Economic development is the essential target of the majority of the world's nations. Every year, aid is distributed, investments are undertaken, policies are framed, and elaborate plans are hatched so as to achieve this target, or at least to step closer to it (Ray 1998). However, Grabowski et al. (2007) argued that economic development should be a sustainable process which increases the real national income of the economic system during a relative period of time. This growth is followed by an increase in the national income and per capita, which leads to improvement in living standards and the capacity of the national economy. This improvement is accompanied by structural changes, such as an increase in capital accumulation, a rise in levels of technical efficiency, and increased economic productivity for society as a whole.

Grabowski et al. (2007) observed that there are various explanations for the different economic development experiences of the world's countries. These explanations are wide-ranging, including such as differences in human capital, natural resource endowments, population density, degree of openness, market structures, government policies, technology, geography and trade and institutional differences. However, a single explanation or a specific set of explanations would not fit all. What works for one country may not work for another.

Al-Shiami (2009) noted that in most developing countries, economic development goals focus on increasing national income, raising the standard of living, and reducing the internal gap through structuring the national economy for the benefit of all sectors. They aim at solving problems resulting from the basic characteristics of the weak economies of developing countries which are producers of raw materials that are subjected to depletion. Such countries face demographic pressures and lack the ability to develop

their natural resources due to limited investment, especially in the infrastructure. These countries have weak capital accumulation due to a lack of savings and are vulnerable to economic volatility since they face fluctuations in the trade exchange rates and they suffer from imbalances in the structure of society in terms of the low level of income, economically ineffective distribution of workers, low productivity, spread of administrative corruption, lack of transparency and domination by despots and authoritarian governments.

#### **2.1.1.1. Economic Development in Developing Oil Rich Countries**

Economic development is much broader than economic growth; although economic growth is a precondition for economic development. Grabowski et al. (2007, p 6) stated that "countries which are typically poor are also typically less developed, though a rich country does not necessarily have to be a developed country" adding that "some of the oil rich African and Middle East countries have experienced large increases in per capita GDP, yet they lag far behind in other areas of development".

Logically, natural resources promote economic growth and development, because the natural capital expands the production possibilities of an economy. The supporters of oil-led development<sup>11</sup> believe that oil exporting countries can base their development on this resource, and enhance their economic and social growth through the creation of jobs, the increased government revenues to finance poverty alleviation, the transfer of technology, the improvement of infrastructure, and the encouragement of related industries. In contrast, Karl (2004) opposed the idea of oil-led development and remarked that the experiences of almost all oil-exporting countries to date have reflected few benefits and too many negative consequences of oil-led development, including slower than expected growth, barriers to economic diversification, poor social welfare indicators, and high levels of poverty, inequality, and unemployment.

Furthermore, Dehbudi (2010, p 82-83) argued that "the available empirical evidence backs a vivid negative correlation linking economic development to resource profusion

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<sup>11</sup> Oil-led Development: This is development based on overwhelming dependence on revenues from the export (and not the internal consumption) of petroleum, as measured by the ratio of oil and gas to GDP, total exports, and the contribution to central government revenues.

referred to as the resource curse that has affected developing nations over the past forty years". On the other hand, Bravo-Ortega and Gregorio (2005) maintained that there are too many experiences where the oil sector has been blamed for the underdevelopment or low growth rates of certain economies. Gylfason (2001) observed that the mere existence of natural resources, such as oil, does not cause economic recession. Rather, natural resource abundance induces certain distortions in the economy, which then work as transmission mechanisms, which, in turn, affect economic growth and development. Gylfason et al. (1999) argued that these transmission mechanisms, such as the Dutch Disease<sup>12</sup>, rent seeking, government mismanagement, and low levels of human capital, directly influence economic growth whereas natural resources only exert an indirect impact via the transmission mechanisms.

Karl (2007) clarified that resource-poor countries, those without petroleum, grew four times more speedily than their resource-rich counterparts, those with petroleum, for the period between 1970 and 1993, even though they had half the savings, whereas countries that were dependent on exporting oil performed worse than their resource-poor counterparts; in fact, they have performed far worse than they should have given their revenue stream. Moreover, countries that depended on oil as a prime resource of growth were marked by corruption and inadequate governance.

Libya, which is classified by the World Bank (2010) as an upper-middle-income developing country, resembles other oil rich Middle East and North African countries in that its economy suffers from structural imbalances caused by the dominance of the oil sector over the other economic sectors, negative patterns of usage of oil resources and inability to diversify the production base (Otman and Karlberg, 2007). Libya relies heavily on oil returns, which accounted in 2008 for about 88.6% of the government revenue, 97.7% of the total exports and 74% of GDP (World Bank 2010). Oil has played a pivotal role in the process of economic and social development in Libya since the

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<sup>12</sup> Dutch disease is an Economic phenomenon named after a crisis in the Netherlands in the 1960s that resulted from discoveries of vast natural gas deposits in the North Sea. The newfound wealth caused the Dutch guilder to rise, making exports of all non-oil products less competitive on the world market. It is primarily associated with a natural resource discovery, but it can result from any large increase in foreign currency, including foreign direct investment, foreign aid or a substantial increase in natural resource prices <http://www.investopedia.com/terms/d/dutchdisease.asp#ixzz1XHHrD2sI>

1960s (Edwik, 2007) and as a non-renewable resource is one of the critical motivations affecting Libya's economic development (Otman and Karlberg, 2007).

Porter and Co-chairmen (2006) highlighted that oil had become the dominant sector in the Libyan economy and that the non-oil sectors were suffering from negative productivity growth. Similarly, Zarmouh (1998) argued that the main effect of the rapid growth of oil production was that the oil sector became the dominant sector of the Libyan economy. The contribution of oil to GDP increased from about 38% in 1962 to more than 73% by 2008, and the share of non-oil sectors has decreased year after year. For instance, agriculture's share decreased from 8% in 1962 to just 1.2% in 2008. Although the oil sector has experienced difficult times, especially in the 1980s and 1990s, it still dominates the economy and the other sectors seem to lack the sophistication to compete (Bruce 2008).

On the other hand, Karl (2004) observed that oil and centralized rule seem to go together, whilst oil and democracy generally do not. Political economic scientists (see, for example, Ross, 2001; Crystal, 1990; and Barro, 1999) have repeatedly documented this relationship through case studies (Algeria, Nigeria, Libya, Iran and Gulf countries), identifying a robust and statistically significant association between oil dependence and authoritarian government. Oil has appeared to impede the development of democracy in most cases, especially in the Middle East and North Africa, although it facilitated democratization in Venezuela. McSherry (2006) argued that oil led to exacerbation of already present pathologies in the political economy: a case in point is the economy of Equatorial Guinea, paving the way for a future of underdevelopment, instability and authoritarian rule. Edwik (2007, p 4) stated that "Norway and Alaska are frequently cited as exceptions to this rule. The fact that Norway was already developed and had a diversified industrial economy base, with a long-tradition of democracy, a market-oriented economy, significant and varied non-energy exports, solid and mature institutions, may largely explain its success".

McSherry (2006, p 31) contended that several African oil-producing countries have adopted similar paths; they use the oil revenues to enhance their patronage networks; thus, they suppress opposition. For instance, the leaders of the Democratic Republic of Congo, Gabon and Angola have proved to be capable of reinforcing their despotic rule via patronage politics. However, Samatar (1999) pointed out that not all rich oil

countries behave similarly. He argued that Botswana used its mineral-wealth to improve its state economy, build infrastructure, develop poor relief programs and construct foreign reserves so as to avoid Dutch Disease. It was a young but functioning democracy in which diamonds were discovered. It has a history marked by postcolonial stability and astute, responsible leadership.

Karl (1997) argued that while revenues remain stable, oil wealth can contribute to long periods of stability and thus strengthen the respective regimes. Smith (2007) analysed the economic development of two contrasting oil-rich states, Iran and Indonesia; he noted that the effects of oil wealth on politics and on regime durability vary according to the circumstances under which oil exports became a major part of a country's economy. The presence of natural resources is a political opportunity rather than simply a structural variable.

Oil may create so much income that the governments become less interested in establishing efficient and tax-extracting bureaucracies, leading to poorly functioning administrations. On the other hand, McKinley (2005) referred to the phenomenon of Dutch Disease, whereby the discovering of oil has a negative impact on the economy; the oil raises the currency value making the country's other products less price competitive on the export market and discourages agricultural and industrial exports by raising their prices on the international markets. Iran has created the basis for a political crisis by damaging the viability of key non-oil sectors. Thus, the economics of Dutch disease might provoke political crises during boom periods, despite the growth in patronage revenues (Davis, 1995).

In Nigeria, Budina et al. (2006) concluded that the oil boom has not put an end to poverty or to the perennial stagnation in the non-oil economy. They mentioned that debt overhang problems, high public expenditure and institutional inability to reconcile competing claims for oil money are exacerbated by misguided policies and have caused spending levels to exceed the rising oil wealth; these are the main factors behind the failure of reform. The regression showed a very strong relation between expenditure and revenues from oil, as expected. Also, Malachlan (1981) explained that the economic difficulties stemming from the oil boom and its aftermath of economic recession in the Middle East have tended to worsen the endemic political instability in the region; he

argued that considerable oil wealth has done little to improve the non-oil sectors, which have receded in relative importance.

There was an absolute decline in the levels of output from the non-oil sectors. Most of the countries that depend heavily on oil eventually become among the most economically troubled, most authoritarian, and most conflict-ridden in the world (LeBillon, 2001). The problem is that the oil revenues corrupt the people in power, who misuse them or channel them to serve their own interests. Oil countries need to diversify their industrial economy base, establish a functioning democracy, a free market-oriented economy and solid and advanced institutions. The mineral-wealth should be utilized to improve the state economy, shape the infrastructure, promote relief programs and create foreign reserves and responsible leadership.

#### **2.1.1.2. Economic Development in Socialist Countries**

In the wider context, the nations, most well-known for adopting a socialist system, have been the Union of Soviet Socialist Republics, People's Republic of China and Vietnam. Around the time of the collapse of the Soviet Union, China and Vietnam started to build a new variety of socialism: single Communist party rule with a market economy. It seemed that these countries concluded that the socialist model of a centrally planned economy would never work. Since then, the world has watched as these countries have dramatically developed their economies, while politically they have maintained a single party system (Fung 2005).

In contrast, Cuba has maintained its orthodox centrally planned economic system, even after the collapse of the Soviet Union (Yamaoka 2007). The common denominator between Cuba and Libya as socialist countries is the lack of political reforms. Yamaoka (2007, p 4) stated that "Cuba's economic policy has been marred by the political objectives, any policy that is considered politically harmful for the revolutionary regime has been avoided or eventually dropped, even if that policy is economically most appropriate". The Cuban government has been prepared to sacrifice its economic growth in order to maintain social equity and since 1991 has introduced only the minimum market mechanisms and has maintained a highly centralized economy (Camero, 2010). On the other hand, Ranis and Kosack (2004) argued that for over four decades Cuba has offered an example of economic development in which comparatively high levels of

resources for building and maintaining human capital have been provided in an exceptionally democratic manner.

Socialism has meant different things to different people in various countries. It was an element of most of the 20th century revolutions, especially those in the Middle East; Libya proved no exception. Bruce (2008, p 76) argued that "Libyan socialism was doctrinal, as opposed to pragmatic, and highly nationalistic in a region where socialism and nationalism often have been found together". However, socialism in Libya was interpreted differently, not just in the political context but in the economic and social contexts as well. Actually, when Qaddafi created the Third Universal Theory, he claimed that this theory was neither socialist nor capitalist. He stated that: "the Third Universal Theory is neither socialist nor capitalist; it is the universal third theory that leads the human beings to final liberation from injustice and authoritarianism" (Qaddafi Discourse, Libyan State TV, Tripoli, 1976).

The political environment in Libya, which was framed according to Qaddafi's tenets and thoughts, has had a critical effect on directing the economy and the economic development process, as will be discussed later in this chapter. The main concern here is the adoption of socialism and the implications for the planned economy within the political leadership vision.

In fact, in planned economies (socialist systems), all business decisions are made by the public sector (government) and the government allocates the resources as they see fit, with very little insight into what the individual wants (Murrell, 1991). According to socialists thinkers, this system was adopted as a solution to the social, political and economic problems facing humanity, and it was designed to realize equality (Pierson, 1995), but it has rarely achieved these targets (Schumpeter and Swedberg, 1994). In the case of Libya, the management of the economy became increasingly socialist in intent and in its effects on housing, capital, and land, which were significantly redistributed or in the process of redistribution (Bruce, 2008). Private enterprise was virtually eliminated and replaced by a centrally controlled economy (Allan, 1981). Meanwhile, after more than fifteen years of radical socialist measures, and in response to the global oil price crises and the difficulties brought about by the economic sanctions, Qaddafi was forced to revisit his system and adopt a more moderate tone. He expressed interest in returning to a more open, free enterprise system (Bruce, 2008).

After the lifting of the UN sanctions on Libya in 2003, the Libyan leadership found it difficult to continue to adhere to socialist ideology; it had to open up to the external world within its objective of liberalizing its economy. However, according to Arabic News (2003) (cited in Alafi et al., 2010, p 13), Qaddafi stated that "this system like that of the former Soviet Union and Eastern Europe failed because it depended on unqualified employees who did not care for their country's interests. The economy has no place for sentiments and niceties; therefore, this system has to be reviewed as there is no one who understands it in Libya". Qaddafi did not hide his opposition to traditional capitalism and rejected the exploitation and encouragement of popular capitalism (Ibid, 2010). It was clear that socialism was no longer appropriate for the new economy; instead, more steps toward market economy were taken within a general transition away from a planned economy (Vandewalle, 2008).

In China's case, the approach to the transition from a planned economy to a market economy can be characterized as partial and incremental (McMillan et al., 1992). Lin et al. (1996) referred to China as being the most successful of the transition economies. However, its economy has been troubled by an increasingly serious boom and bust cycle and whether China's experience provides useful lessons for other transition economies is hotly debated.

Jefferson et al. (1995) stated that China's successful achievements exhibit the pre-eminence of a developing, experimental, and bottom-up approach over the all-inclusive and top-down "shock therapy" approach that marks changes that have taken place in countries such as the Eastern European nations and the former Soviet Union. Woo (1993) argued that China's experience has no general implications because China's initial conditions are unique. He observed that the main contributor to China's success has been neither gradualism nor experimentation; rather, it is the result of China's unique primary conditions, represented by an extensive agricultural labour force, low grants to the population, and a slightly decentralized economic system.

In Russia, which practised central planning for a longer period than any other country, the transition toward market economy has been described as strong and rapid, but its growth rates remained non-positive, especially in the 1990s (Buiter, 2000). The reforms were shaped by political instability and power struggles among constituencies. Also, policy makers lacked a consistent strategy, with the result that conflicts arose among

policies, whilst economic efficiency was not always a primary consideration in developing reforms. Grabowski et al. (2007) pointed out that Russia's experiences in its transition process were similar to those in many other Eastern European countries. The creation of private property rights and the establishment of market exchange led initially to disorganization and fall in output, but with time, recovery has been achieved.

Libya has adopted a general policy of economic reform through developing the non-oil sectors, increasing the share of the private sector and opening the door wide to international companies (Otman and Karlberg, 2007). However, an observer of economic policies and development planning in Libya, which will be investigated later in this chapter, would recognize that the government's focus on the non-oil sectors, for the purpose of economic diversification, varied from one era to another. For example, after the era of global oil crisis, the focus was on industry, whereas after the suspending of the UN sanctions, the focus was on tourism. Generally, the economic policies adopted were misguided. It seems that Libya achieved very little progress in terms of economic reform or its transition toward a market economy.

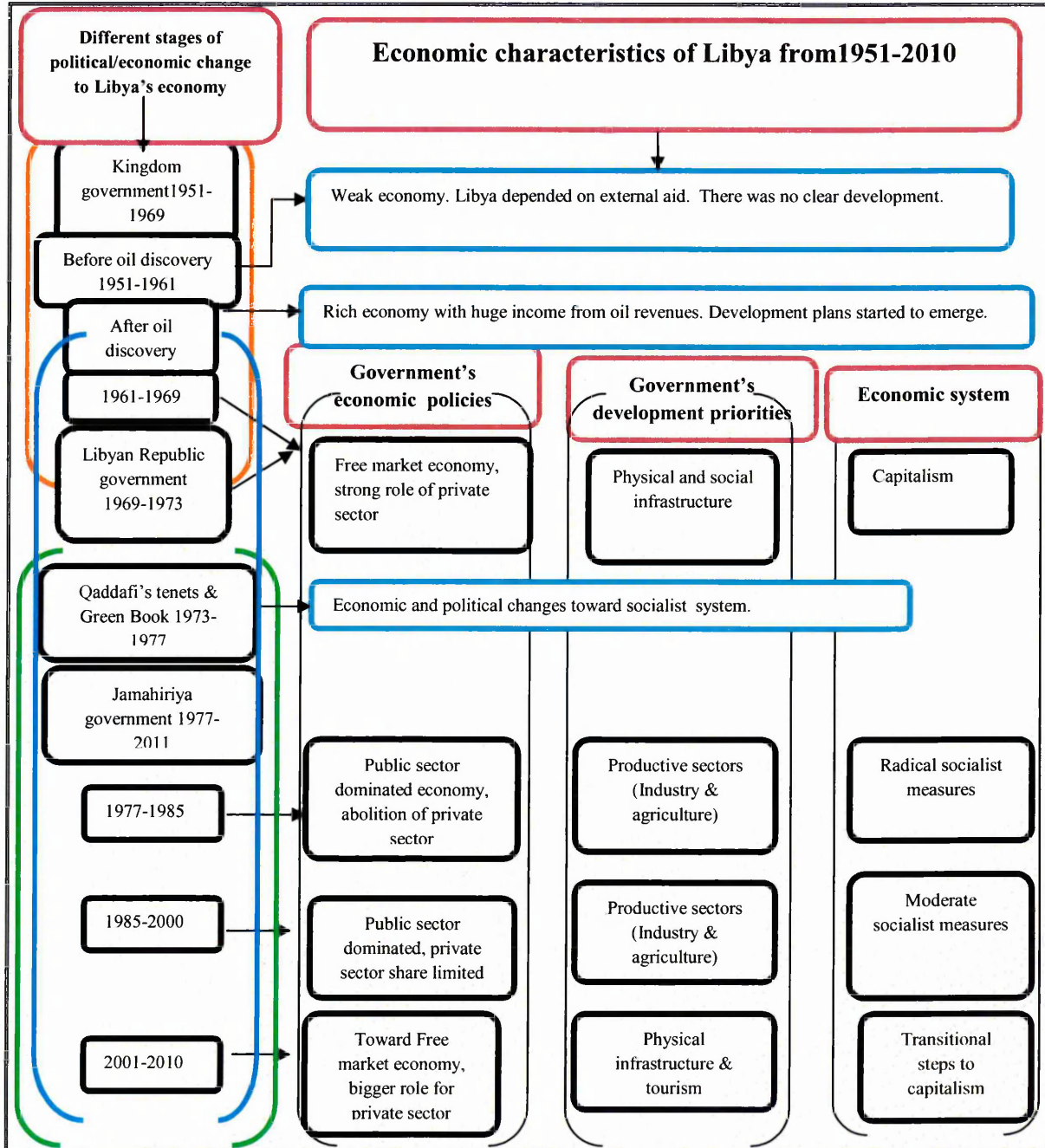
The National Democratic Institute (NDI) (2006) noted that outside the oil sector, large scale private enterprise was practically non-existent. With the political system based on the public sector run economy, the NDI concluded that the way forward was not clear. In relation to Libya's transition, the IMF (2006) report also referred to the development of a market economy being slow and discontinuous, and the need for the government to overcome past shortcomings in policy formulation and implementation.

In conclusion, Libya's leadership exerted efforts to reform the economy, reduce its reliance on oil, moderate its socialist tone, and move towards a market economy. Nevertheless, it failed to a large extent to realize not just the general objectives of economic reform, based on diversification and effective involvement of the private sector, but also objectives relating to self-sufficiency and the reduction of unemployment. In reviving the Libyan economy, the private sector has a vital role to play in opening up the market economy. There should be movement towards decentralizing the economic system, making use of successful strategies employed by other countries.

## 2.1.2. Historical Review of the Characteristics of Libya's Economy

In this section, the researcher identifies key drivers of economic development in Libya through reviewing the main characteristics of Libya's economy during the period 1951-2010.

**Figure (2.1) Time line of economic development in Libya (1951-2010):**



Source: Developed by the research from the literature review of the characteristics of the Libyan economy (section 2.1.2). See, for example, Allan (1973) ; Fathaly and Abusedra (1980); Zarnuha (1997); Bruce (2002); Edwik (2007); and Vandewalle (2006, 2011 )

To facilitate understanding of the economic changes that will be discussed later in the chapter, Figure (2.1) presents a time line to illustrate Libya's economic development in relation to the various political and economic changes that occurred between 1951 and 2010. Taking the figure (2.1) below into account, the researcher will present the historical changes of Libyan economy in five stages:

- Libya's economy before the discovery of oil (1951 -1961)
- Libya's economy after oil and before the socialist system (1961- 1973)
- The planned economy under the radical socialist system (1973 to 1985)
- The Libyan economy in crisis (1985-2000): The fall of world oil prices and the imposition of UN sanctions on Libya
- The beginning of transition from a planned to a market economy (2000-2010).

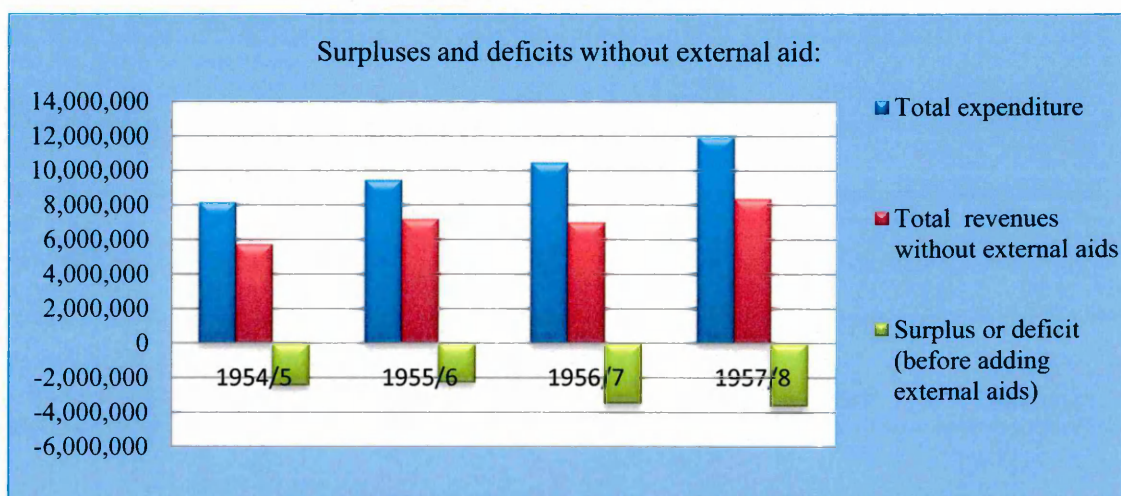
#### **2.1.2.1. Libya's Economy before the Discovery of Oil (1951 -1960)**

After the creation of Libya by a resolution adopted by the United Nation Council in December 1951 (Henry, 1956), it was expected that Libya would be dependent on foreign aid for a considerable time, both for economic reconstruction and for balancing its budget, which was in a chronic state of heavy deficit. Also the prospects of economic and social development were discouraging for Libyans and foreigners alike (Higgins, 1968). Allan (1973) argued that in the 1950s, Libya's standards of living were among the lowest in the world. Its economy was based mainly on undeveloped agriculture and some artisanal fishing, with a very difficult natural environment and a small population not exceeding 1.5 million. The majority of local residents led a simple life, dependent essentially on a subsistence level of food, clothing and housing (El Mallakh, 1969). Although agriculture was faced with extraordinary difficulties such as inadequacy and unpredictability of rainfall, tribal land ownership, land tenure issues, lack of credit, and primitive methods of production (Attiga, 1973), about 80% of the population were dependent on animal husbandry and agriculture for their livelihood (Murabet, 1964).

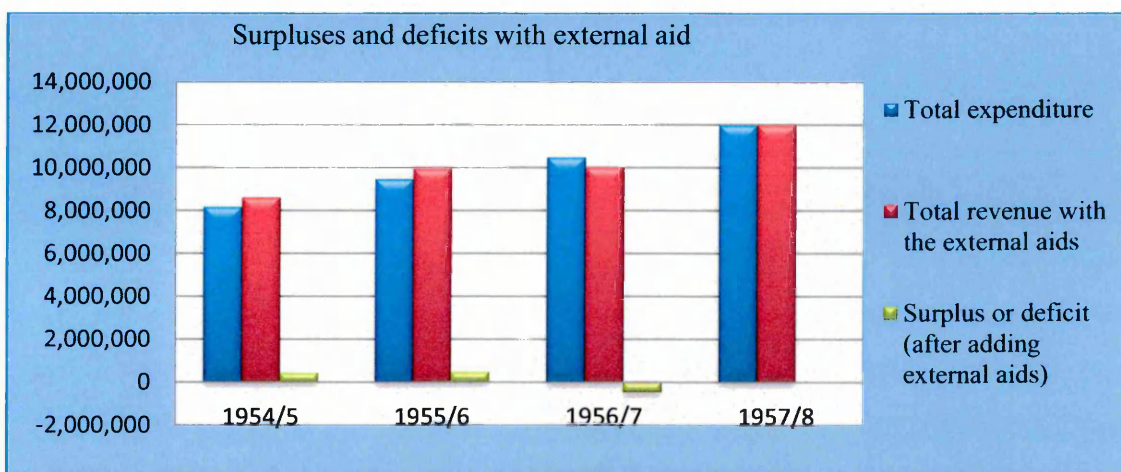
In the field of industry, El-Mehdawi (1981) observed that activities and production were both very limited. He stated that "there was no opportunity for modern industry owing to the simple life of the people, the lack of capital, transportation, skilled labour and power supplies" (El-Mehdawi, 1981, p 235). According to the International Bank for Reconstruction and Development (1958: 33), there were about 3121 factories in Libya;

87% of them were small in size, employing less than ten workers. The main industries were traditional crafts, leather, copper, metal and wood work. Generally, there was no sign of real economic or social development. The economy was in poor shape. Higgins (1963) described Libya's economy as an economy of continuous balance of payments and budget deficits. From Charts (2.1.1 and 2.1.2), it is evident that the economy has faced a continuous deficit without external aid, whilst external aid has helped the economy to recover. At first, the economy depended on taxes and outside aid, also on revenues from the sale of scrap metal left behind by belligerents during the war, and the rents from military bases used by the Americans and the British (Vandewalle, 1996). Allan (1973) referred to these, together with agriculture, as the main physical resources. At that time, nearly 80% of the population occupied the rural and nomadic sectors of the economy, and most of the labour force was engaged in agriculture.

**Chart (2.1.1): Libyan government's revenues and expenditures in the pre-oil period / deficits without external aid (1954-58):** (Nominal values)



**Chart (2.1.2): Libyan government's revenues and expenditures pre oil period/ surplus and deficit with external aid (1954-58):** (Nominal values)



Source: International Bank for Reconstruction and Development, 1958

From the discussion above, it becomes apparent that Libya is basically an agricultural country and that Libyans have relied heavily on agriculture and animal husbandry for subsistence. A subsidiary source of income is the sale of the scrap metal that is left behind by the warring parties and the rents from military bases that were used by the Americans and the English together with the foreign aid.

#### **2.1.2.2. Libya's Economy after Oil and before the Socialism System (1961-1973)**

Allan (1973, p 1) stated that "the black picture of Libya's economy dramatically changed with the discovery and the development of the country's oil resource". Waddams (1980) mentioned that prospecting for oil in Libya started after the first Petroleum Law No 25<sup>13</sup> was signed early in 1955. The first major discovery of oil was made by ESSO Company<sup>14</sup> in 1959 at Ziltan; in 1961, Libya started to export oil. Within eight years of the first shipment in 1961, Libya had become the world's fourth largest exporter of crude oil (Fathaly and Abusedra 1980)

The oil sector dominated the economy, to the detriment of the non-oil sectors. In the meantime, Libya's GDP rapidly increased due to the rapid increase in government revenues from oil exportation (El-Malikah, 1969). (see Chart 2.2). However, despite a decade of rising oil revenues (1961-1972), which created a capital surplus in the economy, extraordinarily, development spending multiplied almost six fold in monetary terms between 1960 and 1971 (Terterov and Wallace, 2002) (Allan, 1983). Per capita income increased from USA\$40 in the early 1950s to about USA\$1000 in 1968 (El-Mallakh, 1969). Heitman (1969) argued that Libya had very little to do with its domestic economic growth because of the very insignificant productivity of the non-oil sectors.

Fathaly and Abusedra (1980, p 228) remarked that "the development process in the sixties was accompanied by several bottlenecks and shortcomings. The lack of balanced growth among the different sectors of the national economy led to a complete change of the economy's structure with hypertrophy of the oil sector at the expense of other

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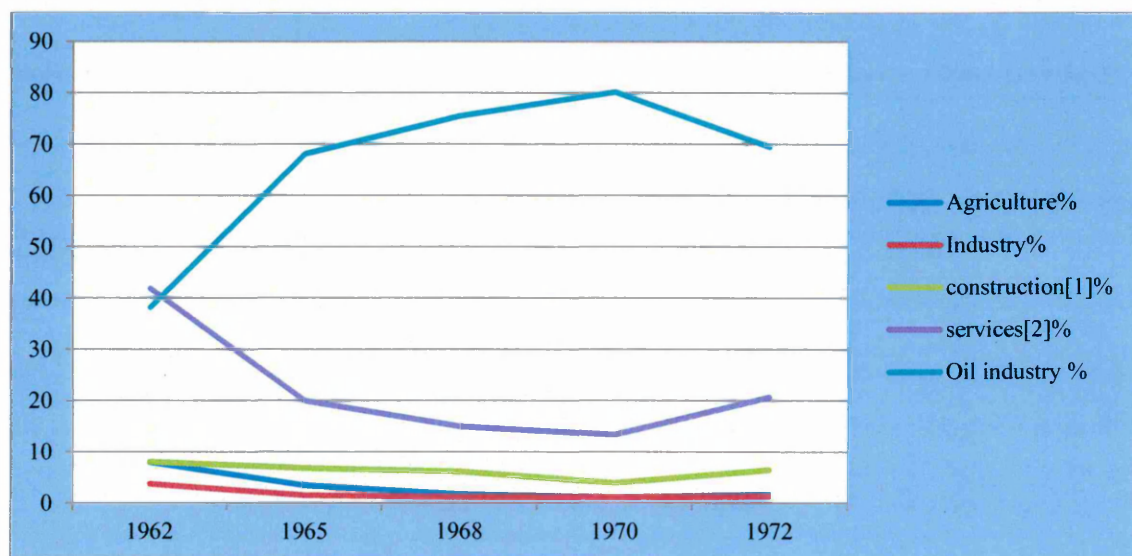
<sup>13</sup> Petroleum Law No. 25 of 1955 was the law of Libya which authorized the allocation of land to individual oil prospectors, and the drilling of oil wells.

<sup>14</sup> Esso is an international trade name for ExxonMobil for and its related companies.  
[http://www.exxonmobil.com/Corporate/history/about\\_who\\_history.aspx](http://www.exxonmobil.com/Corporate/history/about_who_history.aspx)

producing sectors". This somehow reflects the limitation of using GDP as a measure<sup>15</sup> for economic growth and development.

Moreover, despite the significant growth in Libya's GDP and national income, standards of living for the majority of Libyans did not rise correspondingly; the average income citizen was faced with spiralling costs of living and inflation. Fathaly and Abusedra argued that growth did not sufficiently broaden the economic base. They touched upon the considerable discrepancies in distribution of individual incomes and the rising inflation that produced increasingly harmful social and economic impacts.

**Chart (2.2): Relative contribution to Libya's GDP by its economic sectors (1962 - 1972):** (At 1975 constant prices)



Source: Ministry of Economics and Planning, (1973)

Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-1972).

[1] Construction includes housing and facilities

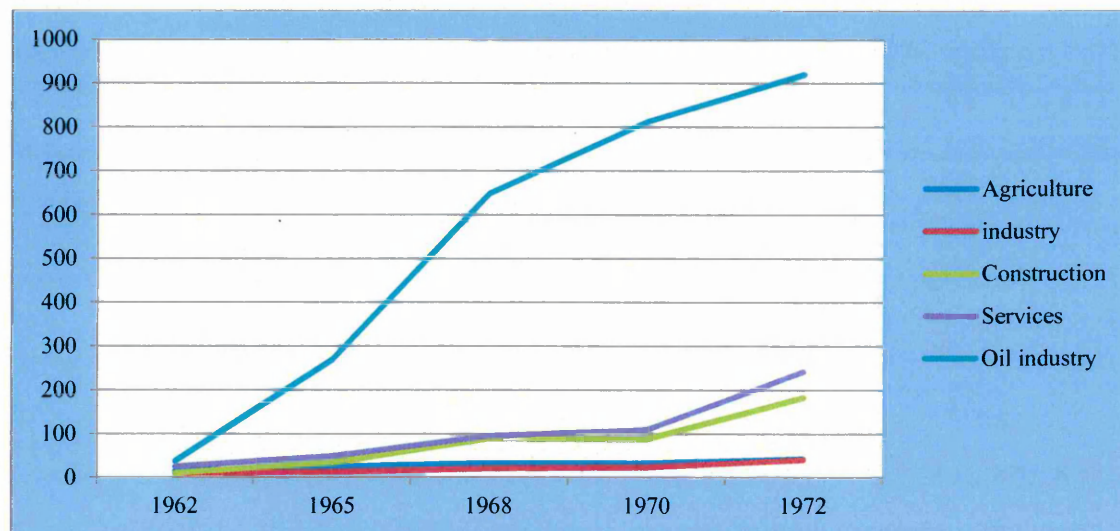
[2] Services includes electricity, public services, business services, transportation and communication

<sup>15</sup> Vaury (2003) argued the limitations of using GDP as a measure for economic development and growth: "GDP does not take into consideration depletion of non-renewable resources, it also does not take into account the free-rider-problem, it does not give any indication of the income distribution, and not does it measure a population's well-being or quality of life". Others argued that GDP is still widely used for many reasons; Grabowski et al. (2007) explained why GDP continues to be so widely used: "clear acceptance among economists, GDP data are available for most countries and over a broad time spectrum and GDP is very highly correlated with other measures of development".

Zarmuha (1997, p 5) maintained that the discovery of oil might have resolved the finance problem but not the regression problem. However, the growth of oil revenues has been in general accompanied by improvements in Libya's economic status. This era witnessed the beginning of economic development (Bruce 2002). The government of the United Libyan Kingdom started to use the oil revenues to build the social and economic physical infrastructure.

From Chart (2.2), it becomes apparent that oil increasingly dominated the economy after 1962; however, the contribution of the non-oil sectors to the GDP decreased, especially in agriculture and industry. Public services and construction remained in a relatively good position compared to agriculture and industry. This trend might be due to the urbanization and population growth in the urban centres that accompanied the discovery of oil. Despite the decline in the contribution of the non-oil sector to GDP, the economy grew rapidly, especially in the first half of the 1960s (see Chart 2.3).

**Chart (2.3) GDP growth in Libya by economic sector (1962 to 1972):** (Million LD)



Source: Ministry of economic and Planning, (1973)

Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-1972).

As is evident from Chart (2.3), agriculture showed a decline in the second half of the 1960s (1966-1968); Allan (1973) pointed out that the massive immigration from rural to urban areas was the main reason for the slowdown in the contribution of agriculture to GDP. Allan (1973) observed that the agriculture sector was slowly corroding as an increasing number of people left the rural areas, searching for jobs with higher wages in the urban areas. Fathaly and Abusedra (1980) referred to the inequity of regional development that was focused on the urban areas and which led to widespread migration

from the neglected rural villages to the urban centres. In contrast, industry exhibited an increase during the same period (1966-1968). El-Malikah (1969) and Jehaimi (1987) denoted that the traditional small scale industries witnessed a significant improvement due to the government's encouragement of the private sector.

The contribution of the construction sector to GDP showed a very impressive increase of 40% in the first half of the 1960s; this reflects the level of effort exerted by the government to develop the local infrastructure. It seems that the government demonstrated extra concern from 1961-1969 with respect to building up social and economic infrastructure, with significant involvement by the private sector (Attiga, 1973). Less emphasis was placed on agriculture and industry. Allan (1981, p 148) pointed to a continued growth in investment, especially government investment in industrial projects, but the obstacles to successful production proved to be inflexible and during this period the Libyan government was not totally dedicated to industrial development. The growth in the industry sector was mainly due to activities related to construction, sector such as the manufacturing of timber, limestone, floor tiles, and cement (Libya, Ministry of Industry 1978).

The limited growth in agriculture and industry was not sufficient to cover the local demand for goods, which was generated by the growth in per capita income. This led to an increase in dependence on the foreign market to bridge the gap in the increasing local supply and demand (Ghanem, 1985). Total imports increased rapidly from 85.3 million LD<sup>16</sup> in 1963 to 241.4 million LD in 1969 to meet this increase in total demand (Ministry of Planning and Trade 1993). Fathaly and Abusedra (1980) argued that there was a failure to utilize the increased demand for goods and services for the development of local production which has resulted in neglect of other sectors, which could not match the high productivity of the oil sector. That resulted in a heavy reliance on imports, which increased more than three-fold during the sixties.

In September 1969, Qaddafi took control over Libya in a military coup (known as the First of September Revolution), and declared that the Libyan Arab Republic regime was to replace the Libyan Kingdom. The announced aim of the new regime was to realize socialism and to liberate the national economy from foreign dependency (Otman and

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<sup>16</sup> LD: Libyan Dinar, the national Libyan currency.

Karlberg, 2007). For the first three years, the leadership cautiously proceeded with its economic programs due to its lack of economic expertise, with the leaders being young military officers. This can be noted in the data presented in the Chart (2.3) above, which show a decline in the growth of the oil sector during the period (1969-1972).

Qaddafi claimed that "the revolution has brought about socialism, with collective participation in the production and the distribution of the production with justice and equality" (Qaddafi Discourse, Libyan State TV, 16<sup>th</sup> of September, Benghazi, 1969). Vandewalle (2006) argued that the revolutionary government immediately adopted a conservative policy to reduce expenditure, placing much emphasis on the production sectors of agriculture and industry. Allan (1981, p 180-190) noted that the comparative allocation to the production sectors, including agriculture, industry and petroleum, revealed the prior enthusiasm of the revolutionary leadership for the changes these sectors witnessed.

While the general trend of economic management for three years (1970-1972) remained similar to that during the monarchy, there was a significant increase in the non-oil sectors, whereas GDP figures increasingly reflected a decrease in oil sector production. Zarmouh (1998) pointed out that the GDP average growth figures for the period (1970-72) were 29% for agriculture, 13.4% for the industry, 47.8% for construction, 33.9% for services and 21.5% for the oil sector. Despite the slow growth in the oil sector, its relative share of GDP remained the highest, at 75% for the same period (1970-1972), followed by the service sector, at 13.4%. Agriculture and industry recorded the lowest figures, at just 1.2% each (Zarmouh 1997). It seems that the oil was the dominating sector of the economy.

Allan (1981) argued that the new regime successfully managed the oil sector. He stated that "The Libyan government managed to utilize its position with respect to reducing oil production; thus causing a rise in prices. The apparent transition in oil exporting policy in 1970, which was accurately timed, continued in spite of the decrease in the production of oil by 40%" (Allan 1981, p 116-179). This could be clearly inferred from the data presented in Charts (2.2 and 2.3) for the period (1969-1972), with oil having the highest share of GDP, whereas it had the lowest growth rate.

In 1970, the new Libyan government replaced the Libyan General Petroleum Corporation, which had been established by the monarchy government to run the oil sector, with the National Oil Corporation (NOC) and turned toward strengthening its position. Ahrari (1976) claimed that this aim played an increasingly large role in this strategic industry. Edwik (2007) pointed out that the NOC was given wider powers than its predecessor, including overall control over production levels. The first decisions made by the NOC were to reduce production, raise official export prices in 1970, and increase the tax rate payable by foreign companies.

Khader (1987) remarked that in 1970 oil production provided more than 99% of Libya's revenues, and employed just 3.2% of Libya's active population; meanwhile, the other, weaker sectors employed the majority of the Libyan population, although they contributed less to annual revenues. For example, in 1970 about 29.1% of the active population worked in an agriculture sector which contributed only 1.2% of the GDP (Allan et al., 1973). Vandewalle (2006) argued that according to Qaddafi's view, that situation would produce a number of undesirable social and economic ripple effects that could not easily be reconciled with the egalitarian tenets of his revolution. This made the government turn to the oil industry and pursue a policy of greater ownership, and greater control over the production.

In general, Ghanem (1987, p 62) stated that "it was clear from the first declaration that big changes were to come sooner or later. The new regime has advocated socialism, more self-reliance and self-sufficiency in food shrinking the private sector". Vandewalle (2006, p 92) noted that "the country's history of crony capitalism during the monarchy had sparked much anger among those who had led the coup, and they clearly consider the private sector suspicious". The private sector, which amassed about 70% of the capital formation in 1968, saw its share fall to 38% by 1971 (Allan, 1981).

#### **2.1.2.3. The Planned Economy (1973 to 1985)**

Political, economic and social changes started to take place in Libya after the announcement of the Zuwarah Discourse <sup>17</sup> in 1973, which changed the character of

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<sup>17</sup> Zuwarah Discourse: In April 1973 Qaddafi launched a program of Popular and Cultural Revolution (PCR) and laid down his five principles \*the abrogation of the constitution and laws, \*Purging the country of party affiliation and the enemies of the

Libya's society and economy. In 1976, Qaddafi created the Third Universal Theory and published it in three books. The first volume of the *Green Book*<sup>18</sup> (the solution to the democracy dilemma) was published in 1976, the second volume (the solution to the economic dilemma) was published in 1977, and then two years later, he published the third volume (the social basis of the Third Universal Theory) (Wright 1981).

The three volumes of the *Green Book* have proved to be the basis of the constitution and the political underpinning of the state (General People's Congresses 1977). In 1977, Qaddafi created the Popular Committees (whereby people were presumably to govern themselves by themselves), and created the first General People's Congresses (GPC), which were the supreme political bodies in his government. In 1977, Qaddafi applied the tenets of his book to Libya's political, economic and social life by declaring Libya's new regime of Jamahiriya (a state of masses). From then, socialism was adopted and a planned economy was implemented (Cooley, 1981). (Vandewalle, 1998). Fathaly and Palmer (1980) argued that the socialist approach was implemented in 1973 in Libya with the most radical measures; the public sector dominated all activities and all private activities were abolished. Bruce (2008, p 77) stated that "if socialism is defined as the redistribution of wealth and resources, a socialist revolution clearly occurred in Libya after 1969 and most especially in the second half of the 1970s".

In general, the political and economic policies were introduced in the *Green Book*, which reflected the socialistic tenets of Qaddafi (Cooley 1981). Wallace and Wilkinson (2004, p 31) stated that "the template for the economic development remains the *Green Book*". Esposito (1999, p 168) stated that "the socialist economic policy drawn in the *Green Book* incorporates the elimination of private land ownership along with the wages and the rent to the benefit of the worker control and the involvement in the methods of production".

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people,\* Freedom for all people,\*Revolution against bureaucracy,\*The Cultural Revolution.

<sup>18</sup> The *Green Book* was created by Qaddafi in 1976, it outlined the key provisions of his Universal Third Theory I, and is divided into three parts:\* addressing Democracy (People Power), \*the solution to economic problems (Socialism), \*public aspect of the Third Universal Theory <http://www.geocities.com/Athens/8744/readgb.htm>

While the termination of the private sector was a visible effect of the *Green Book* tenets, Lawless and Findlay (1984) argued that the effects of the *Green Book* were not evident in many aspects of Libya's economy; for example, Libya continued to participate in the world market, especially in the field of oil. Also, it did not stop dealing with capitalist countries such as Germany, which has played an active role in the development programs at the local economy level, particularly in the fields of light and heavy industry. They stated that "it has been impossible to direct the Libyan development on a course close to that outlined in "the *Green Book*" partly because the *Green Book* is a confused document, and the injunctions it contains are at times quite impracticable. The impact of the *Green Book* on the real economic growth in Libya is less than one might think, considering the publicity it has been given (Lawless and Findlay, 1984, p 244).

An example of the policies proposed in the *Green Book* is the trend toward increasing the role of the private sector in the economy. On the basis of the second volume, private retail trade, rent, and wages were considered as types of "exploitation" that should be eliminated and replaced by workers' self-management committees and partnerships that involved profit participation in both public and private projects. For example, the statement of "*partners not wage workers*"<sup>19</sup> encouraged workers to seize on companies and factories where they were working, and to demand equal shares in profits with the owner.

Bruce (2008) noted that the workers rushed to take over some 200 companies and factories. This statement had the implication of disrupting most of the factories, or at least reducing their productivity; as in most cases, the workers failed to operate these factories, due to their lack of management skills and marketing experience; in addition, the lack of control resulted in the spread of corruption. According to the above provision, the workers had to make their own profits, and when they largely failed, many of them abandoned these factories. However, this process was confusing to a large extent as, whilst ostensibly the workers were taking over these factories, in practice, the government seems to have exerted invisible control over them (Vandewalle, 1998).

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<sup>19</sup> *Green Book*, Part two <http://www.geocities.com/Athens/8744/readgb.htm>

Retail and wholesale trading operators were replaced by public sector "people's supermarkets". The public sector assumed the sales and marketing operations via these public markets, which were supposed to sell at cost (Meliha, 1996). The visible effect of this practice was apparent in the huge accumulation of goods in the public supermarkets, where the stock exceeded consumption; in other words, supply was greater than demand. This was another factor that led to the failure of many factories across Libya, such as the Rata shoe production company, Al-Ma'amora food production company of and the Tripoli sportswear production company. Many experts have referred to the failure of marketing policies as the main reason for their collapse. In the eighties, the marketing policy was based on the belief that "the market absorbs all that is produced", ignoring the size of the market and the desire of the consumers.

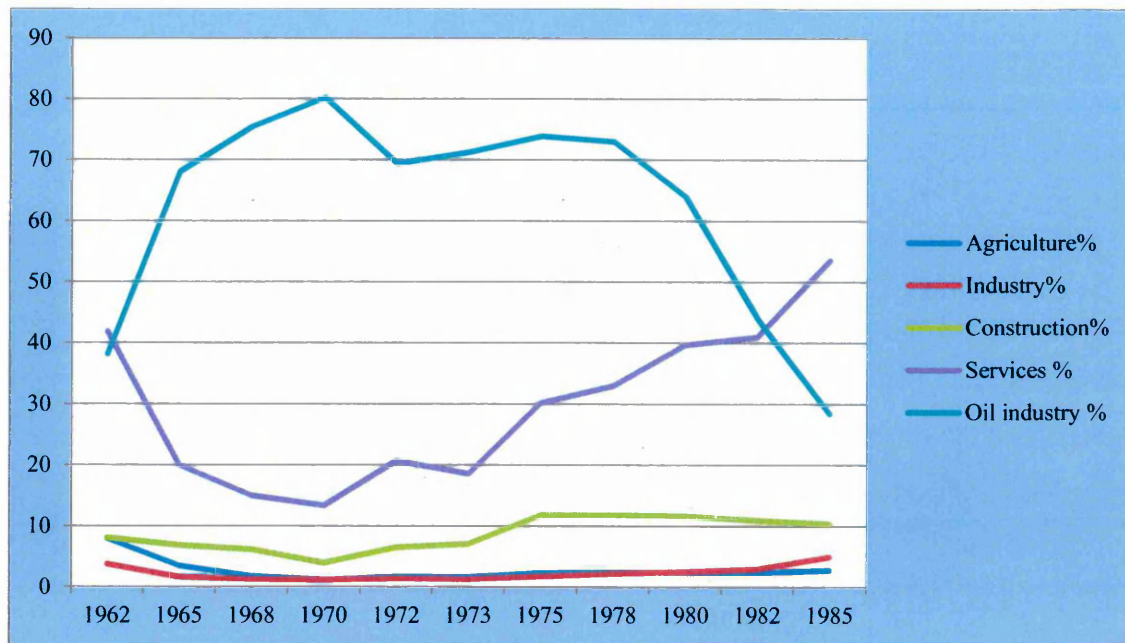
In 1981, as an additional step by the public sector towards controlling the economy, the government restricted access to individual bank accounts to draw upon privately held funds for government projects, and it abolished the right for professional occupations to run private practices (Abdossalam, 1985). Also, by 1973, the government was taking a stand against the international oil companies. Qaddafi started to nationalize foreign oil companies which were owned and managed by American and British companies (Vandewalle, 2006). Russell and Mustafa (1999) and Alafi et al. (2010) argued that while the public sector expanded and the private sector shrank, the only two types of private sector activities that the government did not actively seek to eliminate were agriculture and small firms (self-employed), which were not viewed, according to the *Green Book*, as inherently exploitative.

Regarding the oil sector, Zarmouh (1998) stated that after 1975, the relative share of oil in GDP began to decline (see Chart 2.4). This decline was due to a policy pursued by the government until the mid-1980s which aimed at decreasing the quantity of oil extracted and exported, and also its policy regarding the improvement of the non-oil sectors.

As is evident from Charts 2.4 and 2.5, the service sector's contribution to GDP showed a continuous increase during this period (1973-1985). It was contributing more than 50% of GDP by the end of the (1980-1985) plan, but its GDP growth showed a decrease from 16.5% in (1971-1975) to 6% in (1981-1985).

**Chart (2.4) Relative contributions to Libya's GDP by its economic sectors (1962 - 1985):**

(At 1975 constant prices)



Source: General Council of Planning, 2001 and Ministry of Economics and Planning, (1973)

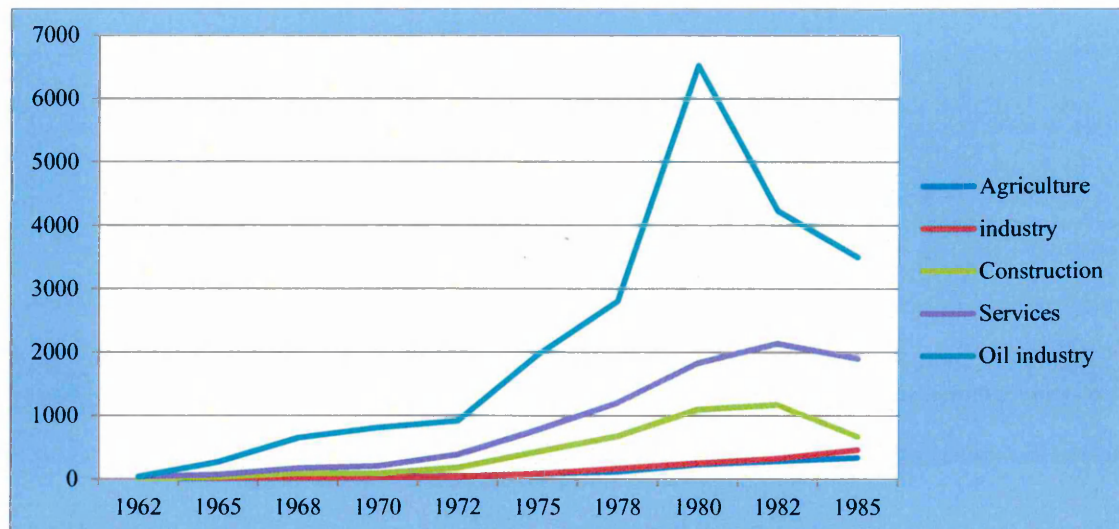
Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-1985).

The government also decided to decrease oil production, which led to an increase in oil prices in the international markets (Vandewalle, 2008). This is displayed in Chart (2.5), which illustrates that growth levels were lower than in any of the non-oil sectors during this period (1973-1985). However, the annual average relative share of oil during 1971-1981 was 56.3%. Benli (1995) stated that the world oil crises of the 1980s caused a dramatic fall in oil prices which led to a decrease in Libya's revenues from oil. According to the Ministry of Planning, National Accounts (1987), GDP growth in the non-oil sector and its share in the GDP remained weak, although growth fluctuated during the 1970s and 1980s, and the share in GDP increased.

The construction sector's contribution to GDP showed a decline compared to figures for the 1970s. Its growth declined, and its contribution to GDP remained lower than that of the service sector but higher than those of the agricultural and industrial sectors. On the other hand, agriculture and the industry showed noteworthy rates of growth, despite their low contribution to GDP. This trend could be explained by the huge decline in the oil sector share to less than 30% in 1985 for the first time since the 1960s (Zarmouh 1998). Ghanem (1987) also noted that Libya's agricultural and industrial sectors were accorded special attention by the Qaddafi government, for the purpose of reducing the

dependency on oil and realizing self-sufficiency. But these sectors were largely under developed and marked by low investment and lack of skilled labour.

**Chart (2.5) GDP growth among Libya's economic sectors (1962-1985):** (Million LD)



Source: General Council of Planning, 2001, and Ministry of Economics and Planning, (1973)

Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-1985).

Larbah (1996) argued that the government's policy toward agriculture was a turning point for agriculture in Libya during the period known as the Agricultural Revolution, because of the high priority accorded to it and the great efforts that were exerted to develop the sector. Ansell and El-Arif (1972) referred to Qaddafi's speech of 22 September/Sebha/1969, when he said that "the Jefara plain, the Al-Akhdar Mountain, the Fezzan valleys that are witnessing the great agricultural revolution and that will enable the Libyan people to earn their living, to eat freely, the food that was normally imported from overseas; this is the freedom, this is independence and this is the revolution".

In terms of most socialist countries where small commercial producers dominated agriculture, the primary path for the socialist transformation of agriculture was the establishment of cooperative peasant farms. Castro, for example, expropriated land holdings to create huge state farms. Farmers were encouraged to sell their land to the state for the establishment of Agricultural Production Cooperatives (Heredia, 1993) and (Lambie, 2009). In Vietnam, which has been considered an agricultural civilization based on wet rice cultivating, the government created a national planned economy by implementing a Collectivization Farm System (Beresford, 1990) (Tuan, 2011).

In Libya's case, in the early 1970s, the government initiated huge agricultural projects in many locations in Libya under the control of the public sector, including cultivation, animal husbandry, fishery, and fish farming (General Plan, Council of Libya, 1997). Abidar (2004) and Antipolis (2002) noted that the government started a huge program of passing the farm properties to local people in the form of family farms, for the purpose of agricultural utilization. To facilitate this policy, cattle and some agricultural machines and equipment were provided in the form of long term loans from the Agricultural Bank (Agricultural Bank of Libya, 1970). In general, direct government intervention in the agricultural sector took place, and more funds were given to the agricultural sector in the hope of increasing output and achieving self-sufficiency in food.

Also, government involvement in industry grew fast. Vandewalle (1991) stated that during the ten years from 1970 to 1980 the government established hundreds of factories, which were run totally by the public sector, while the privately owned factories were taken over by the workers, who were encouraged by Qaddafi. The non-oil industries were devoted primarily to processing local agricultural products (tanning, canning fruit and vegetables, milling flour, and processing olive oil). The government started steering the economy more towards heavy industries such as petrochemicals, aluminium smelting, iron and steel complexes; this policy was based on the directions of the Libyan leadership (Jehaimi, 1987). Ghanem (1987, p 65) argued that the availability of high income from oil facilitated the government policy of "all things to all people". He stated that the industrial enterprises were constructed with very little attention given to their economic viability, whilst money was constantly channelled into agricultural enterprises with little attention given to economic productivity; on the other hand, food self-sufficiency continued to be an unattainable goal.

By the middle of the 1980s, the economy was completely directed by the state, and the economic directives of the *Green Book* further strengthened the government's centralizing grip on the economy. Porter and Co-chairmen (2006) argued that the Libyan government, directly or indirectly, controlled the majority of the assets and enterprises in Libya. Vandewalle (2006) noted that Qaddafi's directives and huge revenues from oil had devastating effects on Libya during the 1970s and the first half of the 1980s. He stated that the Libyan economy continued to be centrally planned due to the preservation of patronage. Moreover, the transparent social contract that depended exclusively on economic distribution resulted in record levels of spending which ignored proficiency

(Vandewalle, 2006, p 137). Furthermore, Edwik (2007, p 2) observed that the alterations that have taken place in the economic sectors since the 1970s and 1980s are the consequence of many intermingled factors, but the prime factor is the government intervention policy, which has played a significant role in the impressive development of the Libyan economy.

During the period (1970-1985), much investment and funding was allocated to the productive sectors, mainly to agriculture and industry, which were targeted to transform the economy from being traditionally dependent on oil revenue into a modern more diversified economy. According to Pinches (1977) the problems of capital absorption do not appear to have been completely resolved by Libya's economic policymakers. They allocated 70% of oil income to gross capital formation in the non-oil sectors as a means of diversifying the economy (this necessitated the investment of over \$3.6 billion in 1975 alone). In reality, this large investment has not realized the desired results. In this regard, Zarmouh (1998, p 41) observed that "the problem of economic growth is bigger than the expenditure of whatever sum of money. Problems of productivity and effectiveness in diverse aspects of the economic activity have been the principal feeble points and impediments to the long term goals of economic development in Libya".

#### **2.1.2.4. The Economy in Crisis (1986-2000);The Fall in World Oil Prices and Imposition of UN Sanctions on Libya**

Economic conditions in Libya started to deteriorate in the mid-1980s with the fall in world oil prices. In 1985, the price of a barrel fell to less than \$10: in sharp contrast to the average price in 1985 of \$27 (Yahia and Metwally 2007). The situation worsened in the 1990s when Libya's economy became further isolated from the global economy with the imposition in 1992 of UN sanctions following the Lockerbie crisis<sup>20</sup> (Vriezen 2004).

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<sup>20</sup> Lockerbie and UN sanctions: in April 1992 sanctions were imposed on Libya by United Nation resolution, in the wake of the crash of Pan Am 103, on which a bomb was planted by two Libyan intelligence agents that exploded over Lockerbie, Scotland, killing 259 passengers and crew, together with eleven people on the ground. Those sanctions were suspended in 1999 when the agents were handed over for trial by a Scottish court sitting in the Netherlands. In 2003 the UN lifted decade-old sanctions imposed against Libya after Tripoli agreed to pay up to \$10 million each to the families of the 270 victims.

Vriezen (2004) and Hochman (2006) referred to Qaddafi's role in the occurrences in Lockerbie in 1988, and the consequences of this terrorist act on Libya itself. The Security Council of the United Nations imposed sanctions against Libya, which obliged Libya to meet the requirements related to the Pan Am 103 bombing before they could be lifted. Vriezen (2004, p 1-38) remarked that "Qaddafi, to begin with, refused to conform to these requirements, which led to Libya's political and economic distancing for years. The sanctions imposed in the 1990s aggravated the anguishes of an economy that was stricken with 30% unemployment and 50% inflation rates". The government initiated a severity program, freezing salaries and dropping grants. The sanctions were suspended in 1999 and then lifted in 2003, after an agreement was reached between Libya and the United States and the United Kingdom. In exchange for lifting the UN sanctions, Libya would acknowledge responsibility and pay compensation to the relatives of the victims of the crash (Judson 2005).

Bruce (2008) maintained that more than seven years of sanctions did not lead to the collapse of the economy; instead, the policy of reducing spending (austerity measures) that had been adopted since the sanctions in 1992 led to the recovery of the economy. For example, the military budget was reduced by 70%, also the leadership stopped supporting liberation movements around the world which cost Libya about 4 billion dollars every year.

A minority view is that the UN sanctions had a positive effect on the economy through placing more strain on the government's ability to fund its inefficient public sector. Otman and Karlberg (2007) argued that to withstand the difficult times of UN sanctions and the drop in oil prices, the government went further in economic liberalization and reforms. Alakdar (2005) pointed out that the UN sanctions and the drop in oil prices drove the government to take additional steps to liberalize the economy, which were aimed at encouraging small and medium private sectors to take part in reducing the pressure on the public sector, and to participate in retail trade, service and light industries for the purpose of overcoming the inefficiency in these industries. Moreover, the government was attempting to reduce the negative effects of the bureaucracy which characterized the public sector, and to share the burden of the public sector with the private sector by focusing on encouraging private sector initiatives in all economic activities, thus reducing government spending.

On the other hand, by the mid-1980s, oil prices started to decline, which had a tremendous effect on the Libyan economy. Libya's oil revenues fell to the lowest level since 1973. Edwik (2007, p 15) contended that the drop in oil income caused a severe shrinkage in the Libyan economy. The negative trend in actual GDP development was not anticipated to be reversed in the late 1980s. The drop in the actual GDP put an excessive stress on government spending, decreasing the level of imported goods and aggravating Libya's debt reimbursement problems, all of which produced lower living standards. Owing to the deterioration in oil incomes, the Libyan government was forced to review its methods of making economic policy decisions, and the means of scheduling the growth projects (Yahia, 1995) (Yahia and Metwally, 2007). However, since 1992, oil production has been cut back as a result of technical constraints caused by the US trade embargo against the country and due to the UN sanctions in 1992. In fact, these factors were more damaging to Libya's economy and they caused huge losses in Libya's budget (Judson, 2005).

Disregarding the external conditions of the UN sanctions and the drop in oil prices, the Libyan economy had already encountered many internal problems related to the compounded increase in corruption and bureaucracy in the public sector. Vandewalle (2006, p 162) noted that the onset of great affluence had resulted in the creation of an economic bureaucracy that was more in agreement with the dispersal of the country's resources rather than the founding of institutions that would direct, settle or regulate the state's usage of its income.

Allan (1981) argued that it was difficult for Qaddafi's government to reveal the corruption that disseminated in its own ranks. The volume of corruption had increased steadily since the 1970s. The Bertelsmann Country Report for Libya (2010) indicated that corruption was a serious problem that, while denounced at the highest levels, was tolerated to a certain degree because the most corrupt people were the regime's biggest supporters. As such, although anti-corruption laws do exist, they are not enforced. Porter and Co-chairs (2006, p 64) touched upon another serious problem in Libya, namely "the low and highly regulated wages in the public sector, which reduces productivity and encourages corruption". However, Libya as an oil rich and undemocratic country faces a high level of corruption. Kalyuzhnova et al. (2009) referred to the behaviour of the state bureaucracy with regard to the country's resource endowment as one of the key issues regarding corruption in oil rich countries characterized by low democracy. The nature of

exploration and production in the oil and gas industry creates a high concentration of capital expenditure, generates a high level of resource revenue for the government and thereby provides ample opportunities for corruption and rent seeking behaviour by the government bureaucracy. Kutan et al. (2007) argued that MENA countries with higher levels of oil reserves are likely to become more corrupt.

The lack of transparency in the decision making process has fostered an atmosphere of corruption. The USA Department of State (2010) referred to corruption in Libya as remaining widespread. It frequently takes the form of openly solicited payoffs. This could include approval for basic bureaucratic processes, such as the required permits and services that are provided only by the government. Given the bureaucratic inefficiency and low salaries paid to government employees, these types of transactions are generally viewed by local operators as a necessary part of doing business. Bruce (2008) argued that the main hindrances to private business growth in Libya related to the general business environment and included lack of transparency, corruption, the absence of an agreed-upon plan, and lack of coordination between the government institutions.

With the background of these impediments to economic development, the Libyan leadership was forced to revisit its established system, and to reform its planned economy. In 1987, the government announced its first economic liberalization measures (Gratton-Lavoie, 2000). The approach to management of the Libyan economy after the mid-1980s can be described as mixed, as Libya took more steps towards liberalization and gave more scope to the private sector.

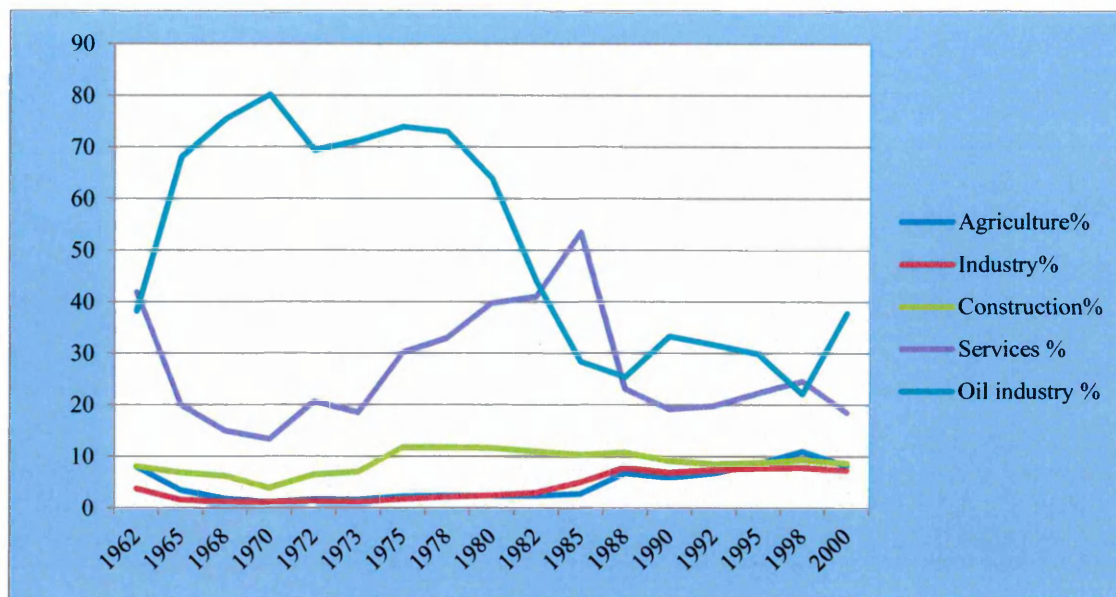
Between 1987 and 1989, the government allowed limited private sector involvement and investment in some economic sectors under the form of collective ownership (Libya, Ministry of Industry, 2000). It also introduced a form of privatization of joint-stock companies which allowed private companies and firms to open foreign currency accounts and to import equipment (Meliha, 1996). Also, in 1997, the government regulated foreign investment by law No 5/1997 in key economic sectors such as industry, agriculture and services, with particular emphasis on tourism (Vandewalle, 1998). However according to the report of the GCP (2003), the efficiency of these privatization initiatives was very limited as most of the privatized companies and firms suffered from declining performance and some even ran at a loss.

Meanwhile, the government adopted a policy to reduce the oil dominance and to diversify the economy. Despite the decline in the growth of the oil sector GDP; the oil sector still dominated the economy. In spite of the huge efforts exerted on economic planning; there were many long-run objectives which had not been perfectly achieved. Ghattour (2004) observed that from the mid-1980s a main objective was to reduce oil's dominance of the economy. However, this objective could not be simply achieved by reducing oil production but also required increases in growth, productivity and efficiency of the non-oil sectors, which had not been achieved. Edwik (2007) noted that as a result of the oil price decline in the 1980s, the non-oil sectors increased their share in GDP to 54.5%.

The main sectors that were targeted by the development plans of the 1980s and 1990s and by policies on economic diversification were industry and agriculture. That focus is evident in the significant allocations that were given to both sectors, as will be highlighted later in this chapter (see section 2.1.3). However, Edwik (2007) argued that diversification was constrained by the shortages of skilled labour and the lack of agricultural land. The share of the agriculture sector in the economy has declined, owing mainly to low investment priority. According to Alafi et al. (2010) more than 6 billion LD were allocated to the development plans, and 4 billion were spent on operating the economic sectors from 1970 to 2005. Although a huge amount of money, totalling about 200 million LD, was allocated to developing the sector, it failed to achieve the target of self-sufficiency, whilst productivity remained very low. Agriculture's contribution to GDP did not exceed 3% in the fifteen years before 1986. In addition, despite the huge decline in oil's contribution to GDP after 1986, agriculture's contribution did not exceed on average 8% in the fifteen years following 1986. Meanwhile, industry was in no better state than agriculture; the sector still relied heavily on oil revenues to provide the necessary investment and raw materials. Also, its contribution to GDP has not exceeded 8% since the 1970s (Libya, Ministry of Industry, 2000).

From Chart (2.6), it is apparent that the oil sector still dominates the economy, with its contribution to GDP remaining the highest amongst all the sectors. Whilst the service sector still made the second highest contribution after oil, the other sectors' contributions remained weak despite the increase in their growth levels.

**Chart (2.6) Relative contributions to Libya's GDP by its economic sectors (1962 - 2000):** (At 1975 constant prices)



Source: General Council of Planning 2001 and Ministry of EconomicS and Planning, (1973)

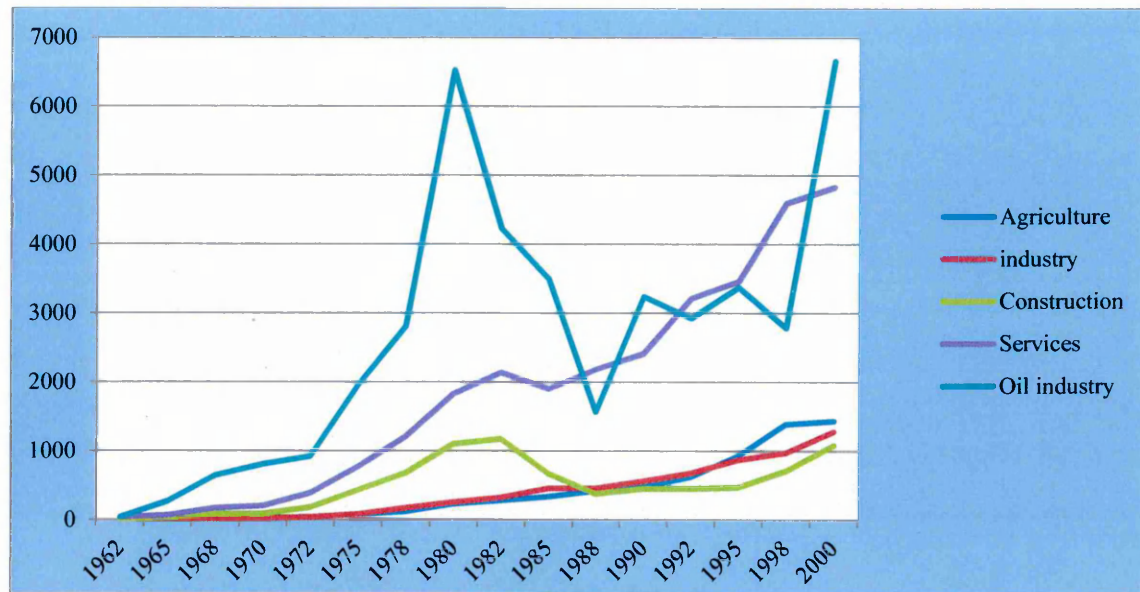
Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-2000).

Chart (2.7) shows that there was notable growth in both agriculture and industry compared to that of the 1960s and 1970s. Agriculture, industry and services sectors recorded good performance from 1990-1995, and then their performance declined in comparison to that of construction from 1996-2000. This growth could be accounted for by the fact that high priority was given to both agriculture and industry, as was demonstrated by the high expenditures on these two sectors, particularly in the 1990s. Regarding services, Otman and Karlberg (2007) stated that private sector played a critical role in improving the service sector and most of the private businesses and capital went into the service sector. Edwik (2007) observed that austerity policies of the 1980s contributed to the decline of the average annual rate of growth of non-oil GDP.

Furthermore, the relaxation of the financial policies of the late 1990s resulting from the oil price increase contributed to higher public sector investment; this led to a rapid expansion in construction and services during the 1990s (see Chart 7). Edwik (2007, p 147) pointed out that construction appeared as a leading development sector, as was the case with electricity, water and other services, meeting a growth in demand that was backed by low pricing policies. Libya has dedicated a huge percentage of the entire investment in the public sector to improving the physical and social infrastructure,

whereas a smaller percentage has been allotted to investment in the production sectors, for the purpose of diversification.

**Chart (2.7) GDP growth among Libya's economic sectors (1962-2000):** (Million LD)



Source: General Council of Planning 2001 and Ministry of Economics and Planning, (1973)

Note: due to the limited availability of data, specifically the data from specific years, data are presented as trend over the period (1962-2000).

In general, the profile of the Libyan economy in the 1980s and early 1990s revealed that the crisis in oil revenues together with the UN economic sanctions were apparent causes for the slowdown of the economy, and for other economic problems and difficulties after 1985. Compound annual growth was about 6% during the fifteen years from 1986 to 2000, and non-oil GDP growth was slow, fluctuating at 6% on average (GCP, 2001).

From the Charts above, it is indeed possible to assert that the attempts by the government to achieve economic reform and development were not very successful. In spite of the decline in the oil sector, especially in the 1980s, the main targets of self-sufficiency and economic diversification had not been achieved, and its impact on the structure of the economy's revenues was not significant despite the huge budgets which were allocated for development (Porter and Co-chairmen, 2006). Bruce (2008) maintained that the economy was still suffering from various problems, and that Libya still faced the formidable challenge of overcoming the long period of centralized economic management, excessive reliance on the public sector, and heavy dependence on oil. Porter and Co-chairmen (2006, p 29) stated that the total picture for the Libyan economy was marked by low levels of productivity whereby a high proportion of the

workforce was either idle or engaged in low-value activities and by negative productivity development in numerous sectors, although not in the oil and gas sectors.

In conclusion, the period from 1986-2000 was economically a critical one. It was characterized by economic sanctions and oil crises. Factors that underlie the failure of the economic reforms and the slow development of the non-oil sectors could be discerned. Among these are the austerity measures enforced on the private sector and the lengthy processes involved in licensing foreign investments, along with inappropriate application mechanisms. A case in point is the government's attempts to encourage the private sector to get involved in small industries. Under this policy, the government was supposed to provide the investors with loans that would allow them to buy the machines and the equipment they needed for the small scale factories, and to supply them annually with foreign currency to buy the raw materials needed to operate the factories; however, the negative implications of this policy were evident in the government's involvement in the equipment importation process, when it failed to commit itself to the standards required by the investors. Moreover, it assigned prices to equipment higher than those that applied in the international market.

Also, the government stopped giving investors foreign currency after the first year of this policy's implementation; as a result, the investors faced financial difficulties and problems with the banks which provided them with the loans; thus most of these small businesses went out of operation. Furthermore, most of the enacted laws that involved economic reforms were never executed; other hindering factors included the absence of the necessary regulations and monitoring measures, centralization, the indirect repercussions of the widespread corruption, the government's strict control of every aspect of the economy and its intervention in the economy through the policy of price-setting, besides the indiscernible interference of the Libyan leadership under what were called the Directives of the Leader Brother of the Revolution.

#### **2.1.2.5. The Beginning of Transition From a Planned to a Market Economy**

The experience of transition in other socialist countries such as China and the Soviet Union can provide little guidance for Libya; the nature of the resources and the type of leadership are very different (Porter and Co-chairmen, 2006). Most economists now agree that an appropriate transformation must combine elements of stabilization,

privatization, liberalization and legal and institutional reforms. In some cases, reforms have been accompanied by political upheaval, such as the collapse of the government of the Soviet Union. In other cases, reforms have been adopted by incumbent governments with little interest in political change, such as the reforms in China (McKinnon, 1993).

Libya went ahead with the transition through privatization of the public sector, liberalizing the economy, re-establishing international commercial and diplomatic ties, and applying for the membership of the World Trade Organization (WTO) (Alafi et al., 2010). Since 2001, the Libyan government has attempted to undertake comprehensive structural reforms and to accelerate its transition from a planned to a market economy (Otman and Karlberg, 2007). Bruce (2008) argued that considerable economic progress was made in the ensuing years after the suspension of the UN sanctions; however, it was notably uneven, with the reforms in the oil and gas industry outstripping the reforms in other economic sectors.

The main visible economic reform adopted by the government was the privatization of the public sector. In 2003, at the General People's Congress, Qaddafi called for the privatization of the public sector, including the banking and oil industries (Libyan TV, General People's Congress, Tripoli, 2003). In responding to Qaddafi's directions, the government started a new privatization program called the Ownership. Many of the large scale public firms were targeted by this form of privatization. According to Alakdar (2005), this program aimed at putting around 360 public firms in the hands of local and foreign investors, whether they were individuals or companies; 204 of these firms were industrial and 156 agricultural. Alfotesi (2008) listed other companies that were also targeted by privatization, such as the Libyan airlines, public telecommunications, the electricity distribution network and some oil services companies. In 2002, the government licensed certain private commercial banks to work in the economy under terms of immediate management control and options to purchase an additional share of up to 51% within 3 to 4 years (IMF 2008).

Alsouia (2005) pointed out that privatization aimed at restructuring the economy towards building popular capitalism through spreading ownership and reducing the role of the public sector. The sector that was most exposed to privatization was industry. The government adopted a variety of mechanisms for privatizing industrial projects, involving management, employee pay-outs or special bidding and partnership.

Generally, Alafi et al. (2009) argued that the privatization process in Libya could be divided into three stages: the first stage began in 1987 in response to the fall in oil market prices; as a result, the government allowed limited private investment. The second stage began in 1992 in response to the UN sanctions; it was also in response to the drop in oil prices and the poor financial performance of many public sector firms. Recently, the Libyan government seems to have accepted the view that the economic efficiency of the private sector exceeds that of the public sector, after evidence revealed that a variety of attempts to solve the problems of managing the public sector had failed to produce an improvement in its performance.

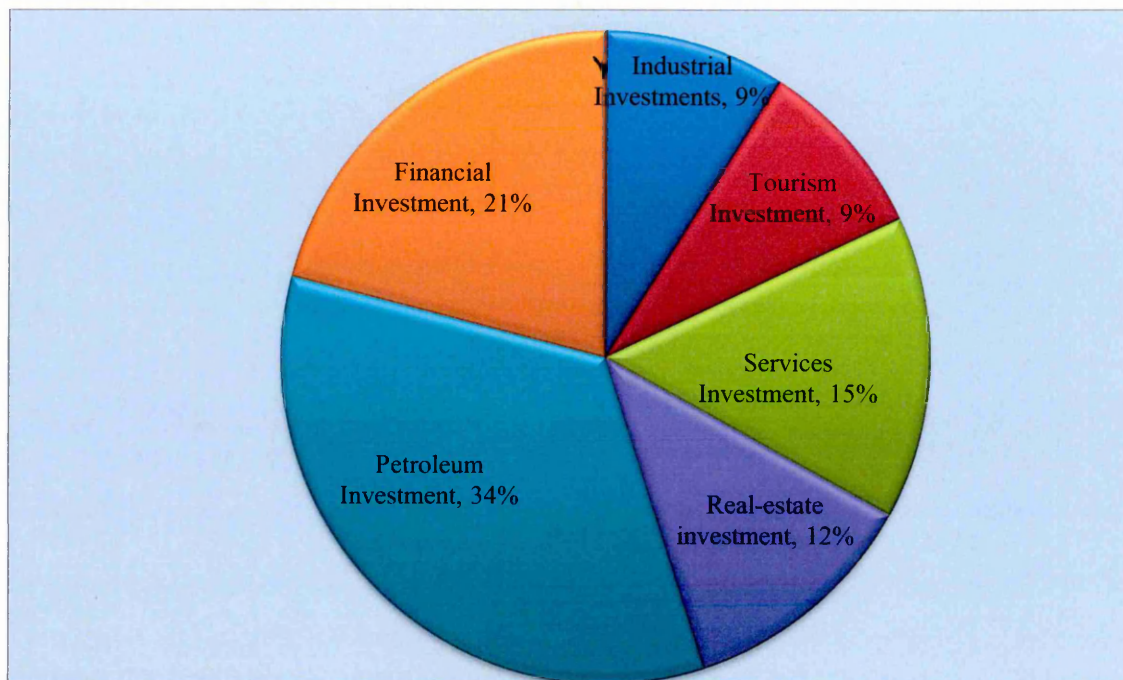
At the Investment Conference sponsored by the government in November 2000 in Tripoli, the Prime Minister called on investors to play a direct role in the five year development plan (2001-2005) to liberalize the economy. In supporting this trend, the Libyan government issued a collection of laws allowing local and foreign investment to work in Libya, providing them with the necessary facilities. The decision of the General People's Committee no147/2004 specified in detail the fields that were open to investment, which included transportation, health and hospital constructions, education, light and heavy industries, agriculture, tourism and the public utilities sector (Libyan Authority of Investment, 2009). It also reduced the tariff rates to encourage investment in Libya, and to make it far easier for foreign investments and capital to enter the country (IMF, 2008). However, as Chart (2.8) displays, agriculture was not among the main sectors that received significant shares of the investment.

Foreign investments were almost fully directed toward the oil and gas sector, and these investments did not contribute to the development of the wider economy. However, according to the Oxford Business Group (2010), foreign investment, excluding the oil sector, in the Libyan markets reached about 3.37 billion Euros for the period (2003-2009). Of this amount, 44% was allocated to the industry sector, 19% to tourism, 16% to construction, and 7% to healthcare. African countries accounted for 58% of these investments (Egypt and Tunisia were the main investors), whilst Europe held only 35% of the total foreign investment in Libya.

The World Bank has played an important role in Libya's transition. According to IMF information (2005), a technical assistance agreement was signed between the Libyan government and the World Bank in 2002; it aimed at consolidating public finance,

completing price liberalization, developing privatization programs and improving the business climate.

**Chart (2.8) Distribution of investments in Libya by sector:**



Source: Libyan Authority of Investment, 2009

According to the IMF (2007), in 2005, a medium term strategy was signed between the Libyan government and the World Bank; it aimed at maintaining macroeconomic stability, accelerating the transition to a market economy and creating a solid basis for the development of the non-oil sectors. In 2007, a technical cooperation agreement was signed between the Libyan government and the World Bank to support Libya's reform and development process.

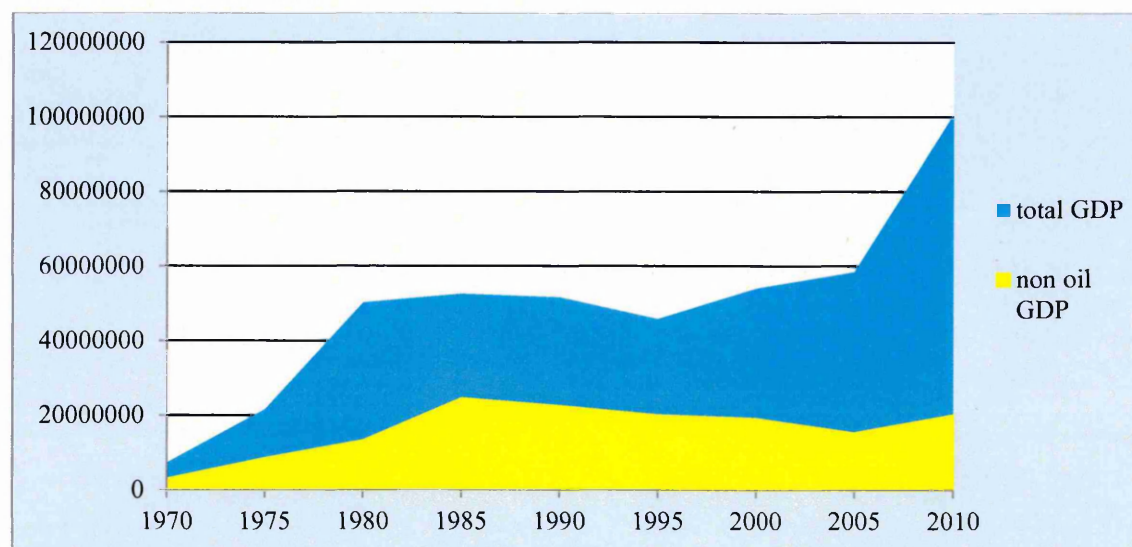
Another transitional step towards a market based economy was taken when Libya applied for World Trade Organization (WTO) membership in 2004 (Alafi et al., 2009). The Libyan ambassador to the WTO stated that Libya wished to join the WTO in order to realize its economic development, diversify its sources of income, attain economic benefits and consolidate good trade and economic relationships with other WTO member states (WTO 2004)<sup>21</sup>.

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<sup>21</sup> Libyan ambassador to WTO's statement:  
[http://www.wto.org/english/news\\_e/news04\\_e/libya\\_stat\\_27july04\\_e.htm](http://www.wto.org/english/news_e/news04_e/libya_stat_27july04_e.htm)

The IMF (2005) reported that higher growth rates, economic development and diversification of Libya's economy could only be achieved through deregulation, significant scaling down of the dominant role of the public sector, and development of the private sector. According to the World Bank (2010), actual GDP has exhibited significant growth since 2001; it reached its highest levels in 2008 due to the substantial increase in oil production and oil exports, which reached a peak of about \$58 billion in 2008 compared to \$8 billion in 1998/99 (OPEC statistics 2000; 2010).

**Chart (2.9) Libya's total (oil and non-oil) GDP and non-oil GDP (1970-2010):** (Million USA \$) at the current marketing prices



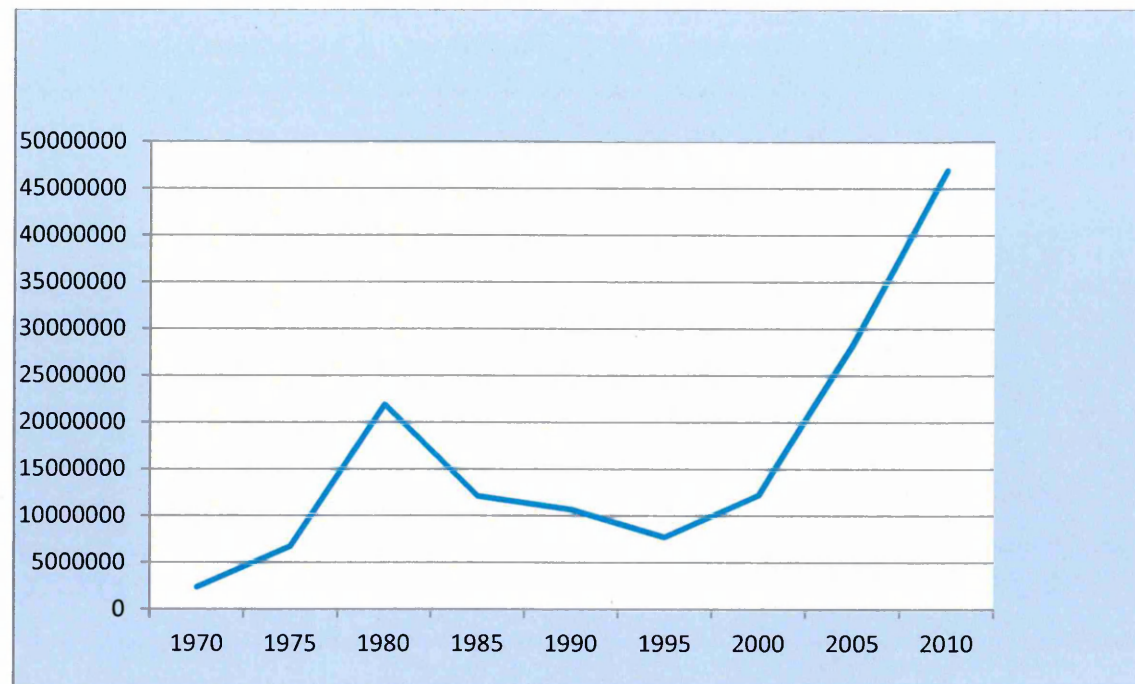
Sources: OPEC statistics, 2000, 2010)

Charts (2.9) and (2.10) illustrate the close relationship between the growth in total GDP and the increase in oil revenues. The decline in GDP in 2009 was a result of the sharp decrease in the oil revenue. They also demonstrate the high dependency on oil when oil revenues are very high, with Chart (2.9) illustrating that the non-oil sectors have achieved a constant rate of growth since 1978; although they have exhibited better performance since late 2005 as a result of the government reforms.

In the 2000s, economic performance was satisfactory in terms of GDP growth; this was mainly driven by the higher oil prices and increased growth in the non-oil sector, with strong performance in services, construction and utilities. Moreover, performance was boosted by the increased government spending; nonetheless, agriculture and industry have still lagged behind (Otman and Karlberg, 2007).

**Chart (2.10) Value of Libyan oil exports 1970-2010:**

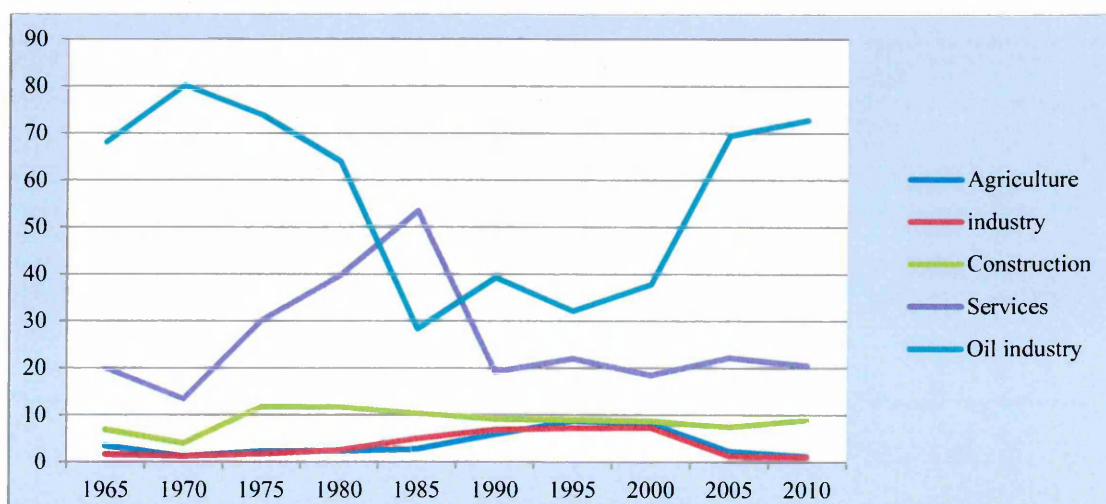
(million USA \$)



Sources: OPEC statistics, (2000, 2010),

The non-oil sectors grew by 6% in the period 2009-2010 (IMF2010). However, according to the (GAI) (2010), in the period (2002-2010), agriculture and industry grew by about 4%, construction grew by 12%, and services grew by 21%. This growth was mainly driven by investments in the construction and tourism sectors. The Chart (2.11) below shows the sector's relative contribution to the GDP in the 2000s.

**Chart (2.11) Relative contributions of Libya's economic sectors to GDP:**



Source: General authority of information (2010); General Council of Planning (2001); and Ministry of Economics and Planning (1973)

From Chart (2.11), it becomes apparent that the Libyan economy still relies heavily on the oil sector, the non-oil sectors' contributions to economic growth are still inconsiderable except for that of the services sector. In contrast, the oil sector contributed less in the period 1981-2000 than previously, mainly because of the world oil crises and the UN sanctions. On the other hand, most of the non-oil sectors showed better performance during the same period. Despite the decrease in the development and operation allocations, the sectors displayed their capability to survive and to work more efficiently without the support of oil.

Otman and Karlberg (2007), Yahia, and Metwally (2007) argued that since 2001 agriculture and non-oil industry have not received as much attention from new developers as before 2000. Nevertheless, there has been continuous government spending on these sectors (see section: 2.1.3.5). There is a recognized conflict between the socialist thought expounded by Qaddafi, and the more Western and capitalistic notions favoured by Qaddafi's son (Saif Al-Islam)<sup>22</sup> (Vandewalle, 2006). Vandewalle (2011) argued that the liberalization efforts continued but they were increasingly threatened by the resistance to political reform, especially from the leadership and the Revolutionary Committees. Vandewalle (2011, p 228) stated that the "different statements produced by Qaddafi and of his son, Saif al Islam, regarding the Libyan economic reforms were good signs for the greater, more structural issues at hand and that though Saif al Islam's speeches are marked by all the slogans of the potent international lexical items that the officials of changing economies regularly use like 'deregulation, transparency, rule of law, markets'; nonetheless, Qaddafi's statements were more in tune with political and security considerations than economic ones".

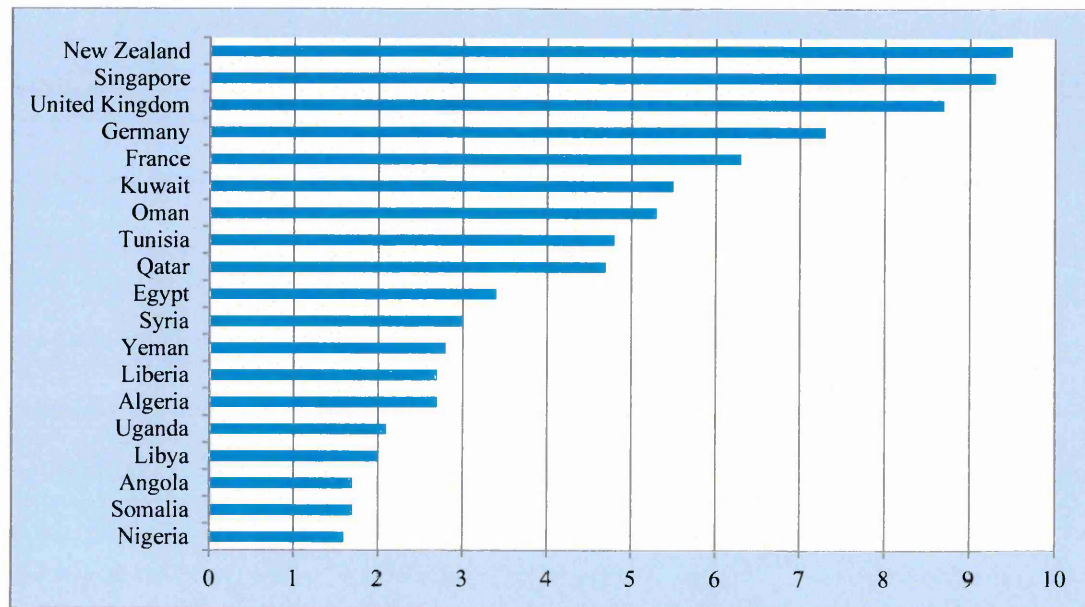
During the 1970s, 1980s and 1990s, the dominant objectives of the development strategy were self-sufficiency and economic diversification, with an emphasis on heavy and light industries, as well as agricultural activity. By the beginning of the new millennium, the government was encouraging the implementation of a far-reaching entrepreneurship program, and accorded special economic status to high potential sectors, such as tourism, communications and telecommunications, with significant shares in domestic and foreign private sectors (Oxford Business Group, 2010). This

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<sup>22</sup> Saif Al-Islam is the second son of Qaddafi. In Libya, he was, during his father's reign, the second most prominent official after his father and had been mentioned as a possible successor.

might reflect the positive efforts to reform the economy and the shift of government ideology towards market-oriented economy. However, Bruce (2008) and Alafi et al. (2009) argued that the mismanagement of the economy and the growth of corruption continue to hinder social and economic development in Libya and to deter private sector development; they thus hamper reform and diversification of Libya's economic structure. Chart (2.12) demonstrates that Libya scores very poorly on this index of freedom from corruption along with countries such as Nigeria, Tajikistan and Somalia.

**Chart (2.12) Index of freedom from corruption for selected countries:**



Source: <http://www.transparency.org>. Transparency International, 2010

The IMF report (2006, p 16) stated that Libya as a rentier State will continue to depend greatly on oil income and that diversification of the economy will not be realized in the foreseeable future. Rentier states have been defined as those nations that do not rely on internal revenue sources such as taxation but instead receive substantial amounts of external economic rent. Oil states in the Middle East, states that survive by providing military bases for foreign powers, and those that have an asset of international importance such as the Suez or Panama Canal, are all examples of rentier states (Schwarz 2008).

Mahdavy (1970) argued that the economic development of non-oil sectors in rentier states is as unimpressive as that of Iran during 1954-1965. There would appear to be sufficient justification for doubting whether the availability of capital and foreign

exchange, deriving essentially from oil exportation, is as beneficial as it is sometimes assumed to be in the process of economic development. Diversification has constituted the biggest challenge for Libya, since it has entailed constant effort to uphold medium-sized projects to increase the country's non-oil production, to enhance exports, and to make jobs available in order to meet the needs of the rapidly increasing labour force. Economic policies for enlarging the production base should focus on (I) land reform; (II) improvement of the legal and regulatory environment, including the labour code; and (III) reform and reinforcement of the judicial system to modernize and accelerate conflict resolution; thereby, the private sector's confidence in the country's legal institutions would be enhanced (Porter and Co-chairmen, 2006)

It has been argued that Libya's leadership has recognized the need for radical change to the existing socialist model, but that the long-term commitment to granting the private sector, especially foreign investors, a substantial role in the economic system is still uncertain (Bruce, 2008; Alison, 2010). Despite these moves towards an open market economy, the Libyan economy is still largely state controlled and poorly diversified. The IMF (2009) report noted that the amount of private investment is minuscule, accounting for only 2% of GDP; the oil sector remains totally dominant, and the non-oil sectors are largely achieving only limited growth.

The period of transition from a planned to a market economy was characterized by ongoing uncertainty. This was mainly due to the strong involvement of Qaddafi's son, Saif Al-Islam, who, although he had no official standing in Libyan political life, made decisions without consulting the government. These decisions could not be implemented in reality; they confronted a number of thorny political and institutional issues which were basically linked to Qaddafi's socialist regime (Alison, 2010). Furthermore, corruption continued to plague important sectors of the economy. The major challenge for the Libyan economy is diversification. Sustained efforts need to be exerted to encourage medium-sized enterprises which could develop the country's non-oil production and reinforce its export base. New jobs need to be created to meet the demands of the swiftly increasing population. Expanding the production base should include land reform, reforming of the labour code and consolidation of the judicial system to accelerate resolving conflicts and to enhance the confidence of the private sector in the country's legal institutions.

### **2.1.3. Phases of Economic Development Planning**

This section focuses on government planning and expenditure on the different economic and social sectors and clarifies the government policy trends that reflect the development of these sectors over the course of time. It also provides an indication of how expenditure on development planning has been affected by fluctuations in oil revenue.

Since Libya gained its independence in 1951, development planning has been continuous, before and after the discovery of oil, and throughout the Monarchy and Jamahiriya eras. Edwik (2007, p 91) argued that "planning development in Libya has been influenced by a number of institutional, historical and ideological factors". The specific path to independence assumed by Libya, combined with its unique political structure has produced planning models and structures which mirror the robust need to develop the country. He also indicated that the oil industry was a critical factor in shaping development planning in Libya. Zarmuh (1998) argued that the government was extensively involved in the economic life in Libya and that the public sector has played a major role in economic development plans since it has dominated all economic activities, while the private sector has been shrinking. In general, it is possible to divide the economic development plans according to the five phases of the Libyan economy; however this classification of the phases was formulated by the researcher based on the historical review of political and economic change in Libya conducted in section (2.1.2).

#### **2.1.3.1. Planning before Oil Discovery (1951-1961)**

Allan (1981) observed that in the first decade of independence an increased amount of external funding was available in Libya for development purposes. Higgins (1953) argued that the problematic state of the Libyan economy rendered external aid vital, and that the UN should have accepted responsibility for drafting a plan for the economic development of Libya. The development process was handled by overseas aid agencies such as the Libyan Public Development and Stabilisation Agency (LPDSA), the Libyan American Technical Assistance Service (LATAS), LFC (Libyan Finance Corporation), and the Libyan American Reconstruction Agency (LARA) among others (Allan, 1981). For example, Dean (1961, p 32) stated that the measure of investment is clarified by the

entire expenditure, amounting to 11 million Libyan Pounds (£L), that was controlled by the Libyan Public Development and Stabilisation Agency during the ten year period of its operation (1951-1961). The role of these agencies was not limited to providing funds to the government and they also helped planners and other experts to draw up development plans.

Farley (1971) remarked that the first plan was for six years (1952-1957), and that it mainly concentrated on training, education, and agricultural research and development. The second and the third plans (1958-1969) concentrated more on agriculture processing and light industries and reducing the deficits in the national budget. The fourth plan (1970-1975) anticipated accelerated development of the (second and third) development plans. However, Allan (1981, p 73) noted that "only the first plan could be implemented and that it was an unpredicted factor of oil revenues which brought this about, not the foresight of the planners or the proper implementation of the development plans". Table (2.1) presents a summary of the functions of the first development plan budget:

**Table (2.1) Development budget for the period (1952-1957):**

Agencies	proposed expenditure (1952-1953)(£L)	proposed expenditure (1952-1953) (£L)	Reserves (£L)
LPDSA	900.000	1.200.000	5.000.000
LFC	200.000	300.000	-
UN & LATAS	1.200.000	1.300.000	-
Total	2.300.000	2.800.000	5.000.000

Source: UN Technical Assistance Programme, 1954 (Allan, 1981: 74).

Expenditure was mainly on electricity (21%), education (14%), roads (13%), agriculture (8%), water resources (8%), telecommunications (9%), broadcasting (5%) and capitalisation of the National Bank of Libya and the Agricultural Bank (9%) (Allan 1981). In general, the World Bank (1958) noted that the development in Libya still had major problems; however, the nation had gained useful planning experience. The planning of this era was characterized by successful attainment of the modest targets, and by a general underestimation of fiscal requirements along with uncertainty about the availability of funding resources.

### **2.1.3.2. Planning after Oil Discovery and Before the Socialism System (1961-1972)**

El. Mallakh (1969) stated that the first Five Year Economic and Social Development Plan (1963-1968) after oil discovery, when Libya was no longer dependent on foreign aid, was unlike the earlier plans in that it was framed with the expectation of capital abundance. El. Mallakh (1969, p 318) observed that precedence was given to establishing infrastructure enterprises, such as water and electricity, which were prerequisites for industrial undertakings. Much focus has been put on resource and industrial surveys and infrastructure received over 65% of the total allocation, the biggest share of the allocated funds. Allan (1973) pointed out that the allocations to the 1963-1968 development plan placed much emphasis on the physical infrastructure, where impressively improvements were achieved.

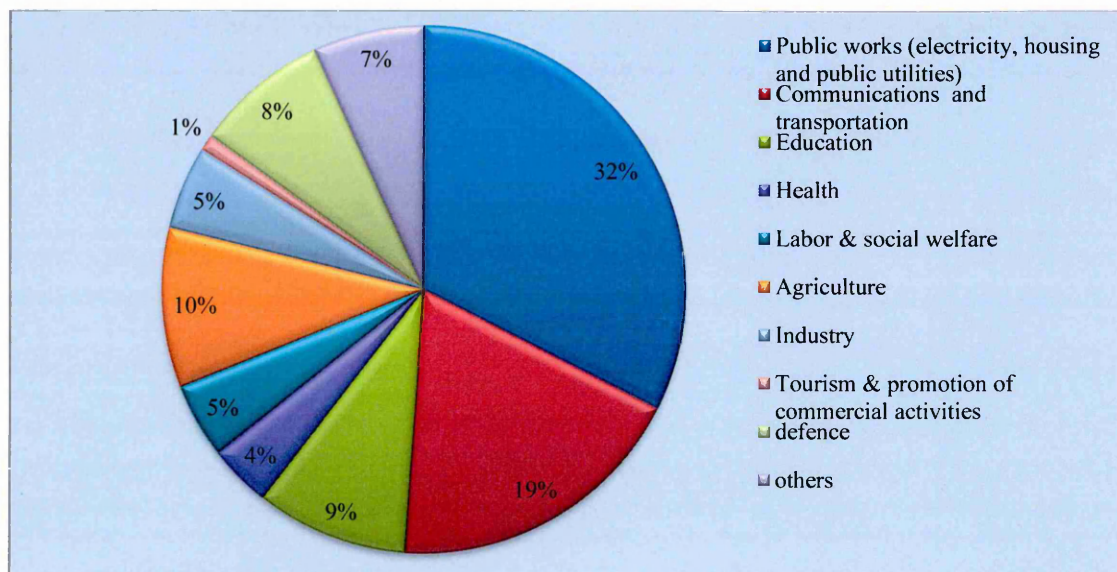
The Ministry of Planning and Development set seven targets for the plan of 1963-1968. Allan (1983, p 80, 81) stated them briefly:

1. "To ensure the early improvement of the standard of living of the Libyan people
2. To give special consideration to the agricultural sector,
3. To permit the public sector to continue its investments in such services as education, health, communication and housing,
4. To develop the rural areas by establishing all the production and public service projects,
5. To organize the import policy to avoid the importation of goods which can be produced in Libya,
6. To ensure increased revenues and to enforce 'tight-belt' control on the government expenditures,
7. And to take steps to meet the lack of information and statistical data."

These targets illustrate the development of the government's approach to policy based on anticipating oil revenues. The country was starting from a low economic base, with the priority of improving living standards. The emphasis was on investment in infrastructure, with the aim of generating local wealth rather than depending on foreign aid. Other aims set out in that Plan included focusing particularly on agriculture and rural development. This resulted in an allocation of 10% of the national budget to this sector, bound by Target 6 of the Plan: to impose "tight belt" control.

Chart (2.13) illustrates how these objectives were translated into funding allocation; the main priority was physical infrastructure (communications, transportation, and public works including electricity, housing and public utilities), which received about 55% of the total allocation. The second priority was social infrastructure and services (including education, health and social welfare), which received about 21%, followed by the productive sectors, including agriculture (11.3%) and industry (4.1%). This gives an indication that although attention had been given to agriculture; priority was in fact given to building the basic infrastructure. However, since 1963, agriculture and industry have shown signs of improvement (Dasgupta, 1973).

**Chart (2.13) Budget allocation for the development of Libya's economic sectors (Five Year Plan 1963-1968/69):**



Source: Ministry of Economics and Planning, (1973)

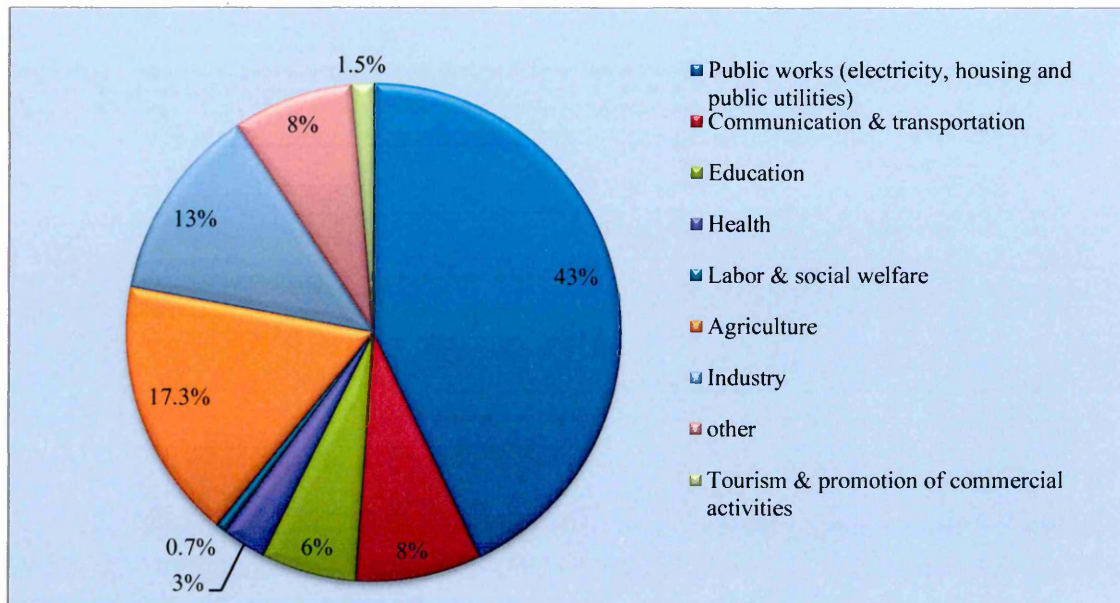
According to Ghanem (1987), the Five Year Economic and Social Development Plan (1963-1968), which was extended to 1969, centred on the basic philosophy of limiting the role of the government to that of encouraging the private sector, to develop both itself and the economy. He stated that the plan's priorities were physical infrastructure ventures: roads, ports, electricity, housing and public utilities, which would serve the development of the private sector (Ghanem, 1987, p 59). It was clear that the government was incorporating capitalist ideas by making an effort not to get directly involved in economic activities but instead to minimize the role of the government in the economy (Vandewalle, 2006).

Alafi (2011) remarked that due to the small size of the domestic private sector and its lack of skills, the majority of the development projects were carried out by the foreign private sector. Most of the Libyan private sector was engaged in trade and small construction businesses, while large construction projects for building infrastructure such as roads, airports, harbours, hospitals, houses and education centres were taken on by foreign private investors. The oil industry was completely operated by foreign investors (Ministry of Economic and Trade, 1968). Ghanem (1985) argued that the allocations for agriculture and industry in the plan (1963-1969) were fundamentally for the purpose of research, supplying information, and developing private activity in these vital sectors through providing credit facilities and low interest loans. Certain protective measures such as tax exemption, subsidies and customs duties were also introduced so as to encourage local agriculture industry and to help them compete with the imported commodities.

After 1969, Libya's planning policies began to change as a result of Qaddafi's coup in that year. However, the government plans continued for the first three years, 1970, 1971 and 1972, and their policy on the economy was not very different from that of the previous government (Ghanem, 1985). Allan (1981) identified that spending on the defence more than doubled, from about 15 million LD in 1967/68 to 75 million LD in 1969/70. Zarmouh (1998) pointed out that government expenditure on the three year plan (1970-1972) for economic development increased compared to the allocations of (1963-1969), due to the increase in oil revenues, which rose from around 192 million LD in 1969 to more than 650 million LD in 1972, and the total allocations increased from around 111 million LD to around 176 million LD (Fathaly and Abusedra, 1980).

Charts (2.13) and (2.14) show clear differences in allocation priorities between the economic and social development plans for 1963-69 and 1970-72. It is clear that after 1969 the new government showed much more interest in the industry and agriculture sectors, as the agriculture allocation was increased from 10% to 17.3% whilst industry's allocation rose from 5% to 13%, figures considerably higher than those under the monarchy government before 1969. These statistics show a clear commitment to increased production, in terms of responding to government priorities that basically drew on the *Green Book* ideologies, for example, self-sufficiency and independence.

**Chart (2.14) ) Budget allocations for the development of Libya's economic sectors  
(Three Year Plan 1970-1972):**



Source: General Council of Planning, 2001.

Nevertheless, this is not reflected in the growth of the agricultural and industrial sectors in terms of total GDP over the subsequent period, 1971 to 1985 (Charts 2.3 and 2.4), when the effects of the increases in funding should have become apparent. The question arises whether the proposed resource allocations were actually made or, if they were, whether the budgets were mismanaged. The plan (1970-1972) accorded similar priority to developing physical infrastructure, which accounted for 51% of the total allocation, with 43% of this allocated to housing and public works (GCP, 2001). Also, there was a considerable decrease in labour and social welfare sector funding. Despite this shift in emphasis, the development budget was strongly orientated toward investment in infrastructure.

Planning for the period following oil discovery and preceding the socialist system (1961-1972) placed much weight on physical infrastructure projects, such as water, electricity, roads and ports, which would create the appropriate environment for the industrial base. These projects consistently attracted high resource allocations. From 1969 much weight was placed on the agricultural and industrial sectors. This emphasis reflected the socialist aims of the new government, but the increased resource allocations were not reflected in corresponding increases in contributions to the economy, which remained dominated by the oil sector, see section 2.1.2.

### 2.1.3.3. Planning in the Period of the Planned Economy (1973-1986)

The clear political changes that were introduced by the Qaddafi regime and the huge increase in oil revenues during this period together shaped the economic and social development planning (Zarmuh, 1998). In general, there were three social and economic development plans during this period: 1973-1975, 1976-1980 and 1981-1985. Edwik (2007) argued that since 1973, economic and social development planning has concentrated on three long-term objectives: self-sufficiency, diversification and job creation. He also referred to the same fourteen specific goals that had featured in the national development plans since 1973. Edwik (2007, p 96) stated that these fourteen points have been frequently emphasized as development objectives. The following are the fourteen objectives approved by the government:

- 1 - Diversify the economy and reduce dependency on oil
- 2 - Reduce marked disparities in the prosperity and growth of different areas and regions in the country
- 3 - Maintain a high level of employment
- 4 - Raise per capita income through an increase in productivity
- 5 - Maintain a relatively stable price level
- 6- Encourage good industrial labour relations to achieve increased efficiency and higher productivity
- 7 - Achieve a more equitable income distribution
- 8 - Develop an adequate and comprehensive national system of education
- 9 - Develop a comprehensive system of national health services to provide facilities adequate to raise the levels of all aspects of public health
- 10 - Provide adequate public services through:
  - (a) Improved communication means
  - (b) Adequate water, sewage, and sanitation facilities to all areas of the country
  - (c) Drainage and irrigation facilities for agriculture development
- 11 - Increasing the economic development rate
- 12 - Providing adequate power facilities
- 13 - Encouraging and promoting private sector participation in all aspects of national development projects
- 14 - Increasing and improving the standard of living and advancing the quality of education

Although these objectives only contain one explicit reference to agricultural development, this cannot be taken as meaning that agriculture was not a priority, as the sector depends directly on the development of infrastructure associated with these objectives. For example, economic diversification implies that the government was focusing on the non-oil sector, a key element of which is agriculture. Likewise many of the other measures listed are fundamental to improvements in agriculture. The key position of agriculture among other economic objectives is borne out by the detail of later economic plans (transformation plans 1986-2000). This is consistent with the three long-term aims of these plans: self-sufficiency, diversification and job creation, of which agriculture was an essential part. In fact, the trend was one of increasing focus on agricultural development by increasing investment in agricultural, industrial and service sectors in pursuing these key aims of reducing dependence on oil and moving towards self-sufficiency.

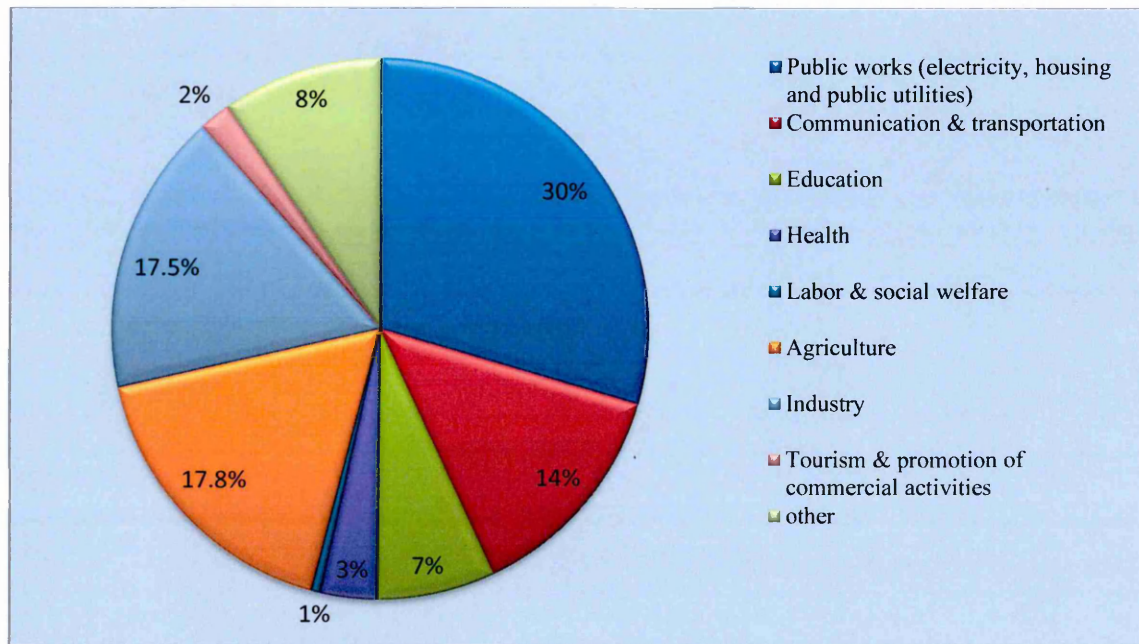
The government's third economic and social development plan (1973-1975) focused similarly on the non-oil sectors, particularly agriculture and industry. It also aimed to make changes in the national economic structure. According to Edwik (2007), the national economy, between 1973 and 1975, saw a rise in non-oil economic activities. O'heda (2003) pointed out that investment considerably increased in all sectors. Agriculture was given more attention and large areas of land were reformed; the manufacturing and construction sectors rapidly developed. The government started to transform the economy towards heavy industries such as chemicals, petrochemicals, iron and steel complexes (Fathaly and Abusedra1980).

Chart (2.15) indicates that physical infrastructure, especially electricity and transportation, received significant attention from the government (Malhauf, 1985). Social infrastructure, including education, health and social welfare, did not receive as much as the other sectors, being the lowest of the government's priorities. However, agriculture and industry were accorded much greater priority than in the 1960s.

According to the Ministry of Agriculture (1994), the allocation for agricultural development, including the establishment of agricultural projects across Libya, increased from about 64 million in 1972 to about 490 million LD in 1980; however, it decreased to about 180 million in 1985. Furthermore, the allocation for industrial development, including the establishment of light and heavy industries, increased from

about 65 million in 1972 to about 583 million LD in 1980; however, it decreased to about 290 million in 1985 (GCP 1997). This notable emphasis on agriculture and industry reflected the ideology of the Qaddafi government regarding improvement of the productive sectors in order to realize self-sufficiency.

**Chart (2.15): Budget allocation for the development of Libya's economic sectors according to the Plans (1973-1985):**



Source: General Council of Planning, 2001.

According to the GCP (1997), total expenditure on economic development plans increased dramatically from 414 million LD in 1973 to about 2873 million LD in 1981, reflecting the increase in total revenue from oil, but after the start of the global crisis over oil prices in 1981, which caused a dramatic decrease in these revenues, total expenditure decreased to about 1523 million LD in 1985. According to Zarmouh (1998), government expenditure on development plans increased by about 2.6 times during 1970-72 compared to the expenditure on the 1963-1969 plan, by 3.4 times during 1973-75, 5.0 times during 1976-80, and 5.4 times during 1981-85. He further argued that these noteworthy increases in government development spending mirrored the ambitious plans owing to the accessibility of foreign exchange (Zarmouh, 1998, p 38). That increase was especially pronounced in the mid-1970s, when oil prices rose dramatically, resulting in an increase in national incomes.

Despite the decline of oil prices in 1981, average government expenditure on development projects for (1981-1985) did not decrease. Zarmuha (1998, p 40 -41) argued that the yearly average of development spending for the period 1981-85 was influenced by the high spending of the year 1981 and that the plan was excessively ambitious; it was drawn up and endorsed before the beginning of the decline in oil income in late 1981. Numerous venture contracts were signed in the first year of the plan; so it became essential to complete such undertakings in accordance with the provisions of these contracts.

In spite of the significant attention that the agricultural and industrial sectors received, and their huge funding allocations, Bruce (2008) argued that the production sectors did not meet targets such as self-sufficiency. The agricultural sector proved unable to contribute productively to the economy. Although the government project of the Man Made River<sup>23</sup> aimed to minimize the problem of the lack of water, Larbah (1996) argued that agriculture still faced scarcity of water resources, which limited agricultural activity in the narrow stretch in the north of Libya. The agricultural contribution to GDP remained below the planned targets and its growth remained weak compared to the level of government expenditure on the sector.

Jehaimi (1987) argued that the government's attempts to create a heavy industry and hydrocarbon sector were misguided. Ghanem (1985) observed that certain problems faced the Libyan economy during that period, particularly in these two sectors, such as ignorance of economic efficiency and productivity, shortage of skilled workers, high administrative costs, and lack of capable management. He remarked that the increasing income from oil eased the strain on the government, so there was an excess of funding for the development of all sectors of the economy, and on all aspects of social life, but he stated that "this was far from easy in a country lacking skills and facing serious management problems" (Ghanem 1987, p 64).

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<sup>23</sup> Man Made River: Is a network of pipes that supplies water from the Sahara Desert in Libya, from the Nubian Sandstone Aquifer System fossil aquifer  
[http://www.puretechltd.com/case\\_studies/water\\_pipeline/great\\_man\\_made\\_river.shtml](http://www.puretechltd.com/case_studies/water_pipeline/great_man_made_river.shtml)

#### **2.1.3.4. Planning in the Period of Crisis (1986-2000): (The Fall of World Oil Prices and Imposition of UN Sanctions on Libya)**

The development plans for the period of 1986-2000, concentrated on the previous long-term objectives of self-sufficiency, economic diversification and job creation. According to Edwik (2007), the total allocation to the development plans (Transformation Budget) (1986-2000) was about 17.752 billion LD; 73% of this allocation was financed by the oil revenues. The first plan (1986-1990) was not fully implemented because of the sharp decline in oil revenue due to the sharp fall in oil prices. This led to a reduction in the allocation to the development plan. Moreover, the 1991-1995 and 1996-2000 plans, which were defined as a comprehensive mobilization framework for the period (1991-2000), did not realize any of the core targets, owing to the difficulties which encountered the development plan for (1986-1990) and due to the lack of real commitment from the policy makers toward the plans' targets.

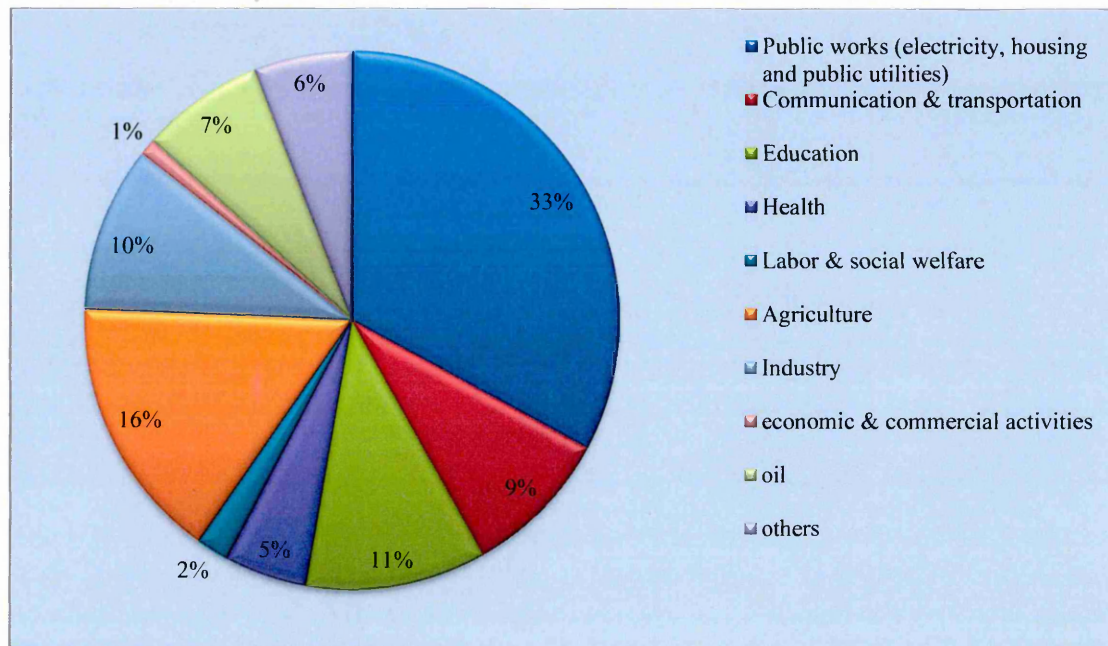
The three (Five Year) plans that covered the period (1986-2000) largely failed because of the sharp decline in oil prices in the mid-1980s and the UN economic sanctions that were imposed from 1992 to the early 2000s, which negatively affected the government revenues (Vandewalle, 2006). However, Libya's non-oil economic sectors during that period displayed better performance, as is evident from Chart (2.7). For example, in the period of (1991-1995), agriculture and industry achieved average growth levels of 13% and 16% respectively, which were the highest figures since 1962.

Expenditure and allocations for the development plans were annually settled, due to prediction difficulties regarding the availability of funds. There were no clear development plans; instead, there were annual expenditure plans for economic development (GCP 2001).

According to the GCP (2001), some changes occurred in the government's priorities, especially regarding industry, where the allocations decreased dramatically from about 20% in (1980-85) to just 2.5% in (1996-2000). Most of the industrial inputs and spare parts were imported from abroad. The UN economic sanctions badly affected Libya's ability to develop its industry. However, the allocations for agricultural development did not decrease as much as those for industry because the government shouldered its responsibility towards the Man Made River project, which exhausted most of the budget

allocated to the agricultural sector (Alghariani, 2004). This project, which was implemented on four phases, started in 1984 and cost the national budget more than 20 billion US\$. It was an alternative water resource for agricultural projects. Agriculture is considered the major water consumer, with land area of about 350.000 to 400.000 irrigated hectares, representing about 87% of the demand in 1998 (FAO, 1998). This might reflect the strong position of agriculture in the government budget for economic development.

**Chart (2.16): Budget allocation for development of Libya's economic sectors from the plans (1986-2000):**



Source: General Council of Planning, 2001

On the other hand, government expenditure on social infrastructure development increased significantly in relation to the plans for 1973-1985, especially in education. Additionally, considerable attention was paid to labour and social welfare. According to the GCP (2001), the years that followed the UN sanctions witnessed a significant decrease in allocations to the development budget. This could be accounted for in terms of the direct effect of the UN sanctions on Libya, accompanied by the continual decrease in oil revenues.

Following the introduction of the austerity policy, Edwik (2007) observed that the government decreased the level of expenditure on the different sectors of the economy for several years, especially between 1993 and 1999. Moreover, the priorities became

different as the attention started to be directed toward construction and services. However, the government concentrated on increasing annual expenditure on housing and facilities, due to the upsurge in population, especially in the urban areas, which increased the demand for facilities and goods. An amount of 2203.5 million LD was given over during the planning period 1986-2000 (GCP 2001).

During the decades of the 1970s, 1980s and 1990s, development planning realized some of its objectives to varying degrees. Food self-sufficiency, for example, was hindered by many impediments including: scarcity of agricultural land and water resources, lack of skilled workers and management experience, unstable agricultural policies and effective absence of a financial market (Larbah, 1996). The diversification target was also hindered by the increased dependency on oil, especially in periods of rising oil prices. But major achievements of development planning in the field of economic diversification could be seen in the establishment of a successful petrochemical industry, a wide base of manufacturing industries and the growth of the services sector, including financial services and tourism, and some modest improvements in privatization programs (Edwik, 2007; Yahia and Metwally, 2007; Otman and Karlberg, 2007; Bruce, 2008 and Alafi, 2011).

Planning for the period of crisis (1986-2000) involved concentration on the previous long-term objectives of self-sufficiency, economic diversification and job creation. The three (Five Year) plans mostly failed, due to the sharp decline in the oil prices in the mid-1980s, and the UN economic sanctions that continued from 1992 to the early 2000s, and that negatively affected government revenues and Libya's economy. Nevertheless, expenditure and allocations for the development plans were annually settled owing to the prediction difficulties concerning the accessibility of funds. Instead of clear, long term development plans, there were annual expenditure plans for economic development.

#### **2.1.3.5. Planning during the Transition to Market Economy (2001-2010)**

According to the Oxford Business Group (2010) and (EIU 2010) the government planned to allocate \$35 billion for the transition plan; about \$20.81 billion to GPC to carry out their projects in the different economic sectors, \$3.09 billion for the national oil company, \$1.22 billion for real estate loans, \$935 million for the Man Made River

project, \$13 million for the defence committee, \$609.76 million for the settlement of internal and external obligations (Oxford Business Group 2008, p 29). The government announced its plan to spend about \$30 billion for the years 2010 - 2011 for the purpose of improving the physical infrastructure. The two plans of (2001-2005) and (2006-2010) aimed mainly to reform and to correct the direction of the economy and to diversify its structures.

The main goal of development planning in this era was the diversification of the economy. Many sectors were targeted by this goal. Porter and Co-chairmen (2006, p 75-76) stated that the National Economic Strategy project team investigated five clusters for leading social and economic development in Libya; these are: agriculture, construction, energy, tourism and transit trade. Manufacturing and mining were not taken into consideration; rather, they were given constrained potentiality for instant development. The team accorded priority to these five clusters in order to help the government focus its investment, human and other resources on these clusters. These sectors were chosen according to the current size and future potentiality. However, in the new development vision, economic diversification was the main target for economic reform and development, ahead of any other objectives.

Edwik (2007, p 95) argued that in "the Libyan setting, diversification of the economy essentially means the growth of the non-oil sectors and the decrease of the proportion of government income and export determined by oil and gas; it also means decreasing the role of the public sector in the Libyan economy as one of the objectives central to the continuing efforts to restructure and liberalize the economy". Porter and Co-chairmen (2006) considered that success in realizing the aim of economic diversification through the success of developing the non-oil sectors would in turn lead to success in reducing the unemployment level and the dependency on oil. The recent economic and political trends in Libya have led to sharpening of the objectives of development planning. Economic sustainability requires economic diversification; that diversification is seen as central to a strategy of encouraging business and job creation, in order to establish a secure economic base on which to build a distinctively Libyan culture and policy.

Planning for the period of transition to a market economy (2001-2010) involved economic diversification, the development of the non-oil sectors and a decrease in the proportion of government returns and exports stemming from oil and gas. It also meant

reducing the role of the public sector in the Libyan economy, an objective which is essential to the constant efforts to reconstruct and free up the economy. As stated earlier, the two five-year plans of (2001-2005) and (2006-2010) aimed largely at reforming and correcting the direction of the economy along with diversifying its structures.

#### **2.1.4. Conclusion**

In the review of the literature it was suggested that political and economic changes that have happened since the early 1970s have been particularly significant in their effect on Libya's economic development. In addition, although oil had been discovered before that phase of planned economy and socialism, the literature demonstrates that oil revenues were directed towards a different path after Qaddafi took control of Libya. On the other hand, the literature provides evidence that the beliefs and ideologies of Qaddafi were one of the drivers of economic development in Libya. Also there is greater availability of publications and information about that period than for the period of kingdom. The large amount of documentation covering this period, which is the key period of focus for the study, has allowed the researcher to undertake an in-depth review of the key issues identified in the conceptual framework.

To conclude this section, one can note that despite the continuous government expenditure, economic development in Libya has not realized its objectives; its progress in some major development areas has not been impressive. Most importantly, the elements in the development process for achieving success did not achieve the objectives of the development plans because they were not wisely implemented: the economic policies were not rational enough to achieve the level of development required. The funding resources for economic development, namely the oil revenues, were not used wisely enough to achieve investment returns, either economically or socially.

The discovery of oil in the early sixties played a pivotal role in the process of economic and social development in Libya; moreover, the abundance of revenues from oil exports played perhaps the key role in enabling Libya to continue to spend generously on development plans, with no regard to the efficiency of the results achieved. The oil sector is the only vital source of income, representing about 97% of total exports. Due to

the high dependence on oil revenues, the government was not compelled to make the non-oil economic sectors more profitable. This, in fact, is a common characteristic of most of the oil rich developing countries. However, oil is a non-renewable resource that is subject to depletion, so in the next few decades Libya could find itself in a critical situation with respect to saving its economy from collapse, in the absence of significant contributions from vital sectors such as agriculture, industry and services to the national income, since these sectors suffer from low productivity and low efficiency.

The contribution of the non-oil sectors to the national income is very low compared to that of the oil sector. Although the service sector has at times contributed more than 50% to GDP, the review of its growth rates in the same period exhibits weak growth, not exceeding 1%, which can be accounted for in terms of the decline of oil contributions to GDP due to the global crisis in the oil markets during that period rather than to the growth of the service sector. Economic development planning in Libya was lacking the essentials of capital information, the appropriate economic structure, and designation of responsibilities, compounded by a lack of monitoring and feasibility studies.

Government spending on the various economic sectors, to a large extent, was not accompanied by any monitoring of the efficiency and productivity of these sectors. The massive investment by the government in agricultural and industrial projects did not bear fruit. They were characterized by low productivity and lack of efficiency, but, even so, the government continued to support them with oil revenues. Hence, the success of any development initiatives was limited.

Meanwhile, the adoption of socialism since the seventies has significantly affected government policies towards the development processes. The government leaned heavily toward production sectors such as the oil industry, non-oil industry and agriculture. The resulting policies have neglected the private sector. Although the government has made many attempts to restore the private sector's role in economic life, these attempts have not worked. This was because of the continuous intervention of the government in the economy, and the effects of Qaddafi's beliefs. However, the source of inspiration was the political rather than the economic irrational directions, as presented in Qaddafi's speeches or in the *Green Book*. Too much money was spent on

funding the political visions of Qaddafi, which dictated economic decisions and the direction of government policies.

In general, the Libyan economy still faces many problems and stumbling blocks to its economic development. The economic development plans have failed to achieve the desired objectives at a level that is commensurate with the level of funding and the spending. Problems such as the lack of skilled management, direct and indirect corruption, and the lack of monitoring, as well as, invisible involvement of the Libyan leadership, according to the direction of the *Green Book* philosophy, which led to the lack of a clear economic vision, have largely contributed to hindering Libya's progress towards rational economic development. Edwik (2007, p 97) stated that "it was impossible to assess the success of Libya's economic plans in the absence of any development reviews since 1973".

The abundance of oil and its rich revenues has led the government to rely heavily on oil as the sole income source; thus, it continues to fund both the non-oil economic sectors and public sector operations while disregarding their efficiency. On the other hand the availability of huge revenues from oil has allowed the leadership to apply its political ideologies whilst disregarding their validity and feasibility.

It is pertinent to point out that despite the apparent similarity between Libyan socialism and that practised by other regimes around the world, the Libyan version is the product of Qaddafi himself and not typical of the philosophies applied in other socialist countries. So the planned economy adopted in Libya was in the shadow of Qaddafi's thoughts, and it entailed increasing the grip of the public sector and the state on the economy and shrinking the role of the private sector. Despite the reforms toward a market ordered economy, the planned economy is still the system implemented in Libya and the public sector still plays the dominant role in the economy, impeding the role of the private sector in economic growth. The government's economic policies, which have focused primarily on the public sector as a development tool, have not been effective because the public sector has its own shortcomings. However the issues of the planned economy are not limited to Libya; rather, they have arisen in other countries that have implemented a planned economy.

In terms of the focus of this research, the researcher will now critically review the literature in terms of the issues related to the development of the agriculture sector in Libya from the perspectives presented in the section on economic development. The aim is to highlight literature that offers explanations of the factors that hinder the development of this vital sector, which, as the previous chapter made clear, has received significant attention from the Libyan government.

## **2.2. Agriculture development in Libya**

### **2.2.1. Introduction**

Agricultural development and economic development are tightly linked (Johnston and Mellor, 1961). Agriculture development is seen as the first crucial step towards broader development and reduction of poverty and food insecurity (Braun et al., 1994). However agricultural development is one of the components of the comprehensive plan of economic and social development (Alyabis, 2011).

Agriculture plays, directly or indirectly, an important role in economic development; the main direct roles of agriculture are to contribute to GDP and to provide job opportunities. However, the agriculture sector has an indirect effect on other sectors, such as transportation, manufacturing, banking and the foreign trade sector. For example, the agriculture sector provides the raw materials for the industry sector; it is also considered a market for industrial products such as machines, fertilizers, chemicals, etc., which are produced by the industry sector. On the other hand, the agricultural sector is one of the important sectors in providing food security for the world's nations (Norton et al., 2006). Hence, agricultural development is a vital part of the comprehensive economic development of Libya under the general policies aiming to diversify the economic base, reduce the dominant role of oil, and realize self-sufficiency in food (Abidar and Laytimi, 2005).

From the discussion in the previous section on Economic Development, agriculture emerges as one of the sectors which have received significant attention from the Libyan state. At the same time, the agriculture sector has one of the lowest growth rates among Libya's economic sectors. This section provides a general view on the development of the agriculture sector, as one of the main components of Libya's economy during different periods of time. The previous chapter identified the main features and characteristics of agriculture in Libya, and how it was affected by the different political and economic changes in Libya, highlighting the main drivers, as well as constraints that have hindered the development of the agricultural sector. In this chapter, the researcher investigates the current situation of the agriculture sector, comparing it to other MNA

countries; this serves as evidence for assessing the level of development that agriculture in Libya has achieved.

Also, this section illustrates the agricultural sector's contribution to the economy, and to realization of food self-sufficiency. However, to meet the research aims and objectives, within the agricultural sector, this section focuses on the fishing industry in Libya. Although ecological factors are characterized as among the main factors affecting agriculture development in Libya and add to the challenges facing the sector, this chapter will not explore them further because they are not considered as critical factors in the case of fishery and aquaculture. This will be explained later in this section. At the end of this section, a conceptual research framework is presented which specifies the drivers and impediments regarding the development of the fishing industry in Libya.

### **2.2.2. Comparison of the Agriculture Sector in Libya with Other Countries of the MNA Region**

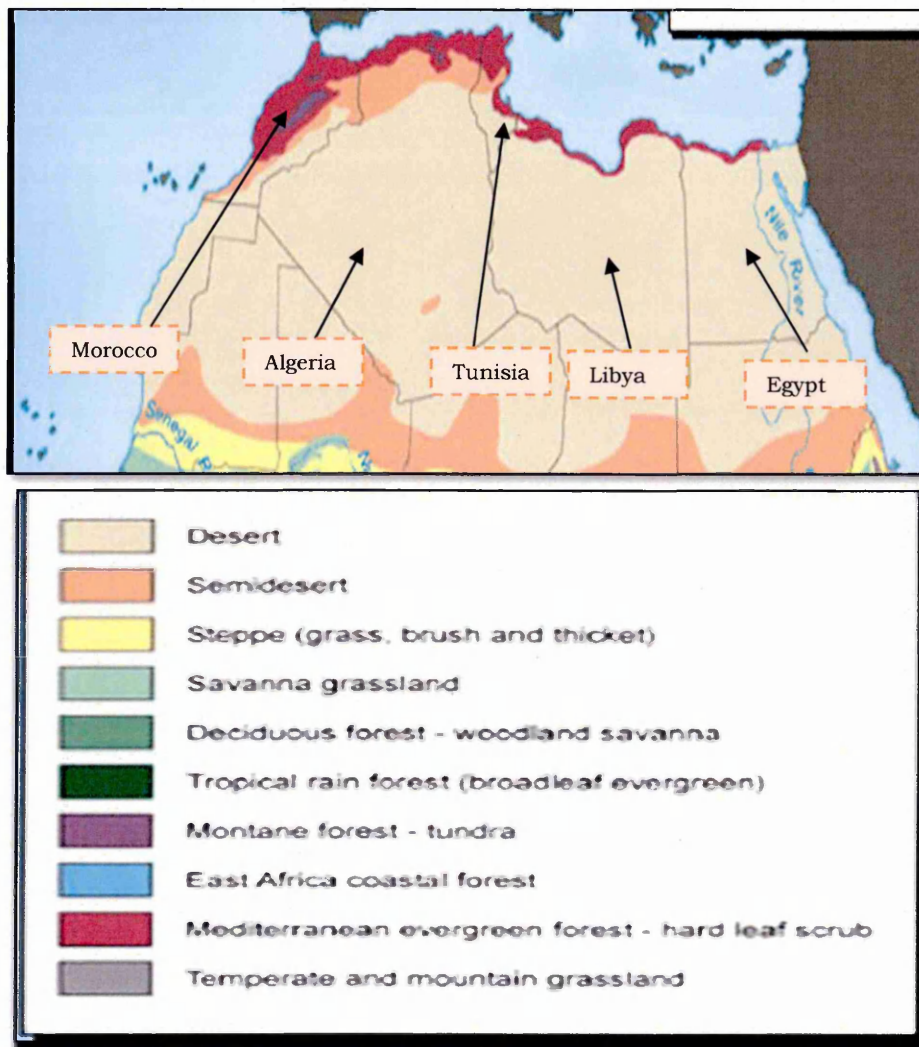
The MNA region is composed of three types of topography: to the north, coastal plains, plateau and mountains and to the south, arid desert. Despite the similarities in the topography of the region's countries, there are some recognized differences; for example, the Atlas Mountains in Morocco, Algeria and Tunisia, the Nile River in Egypt and Jefarah plain in Libya (Hillstrom, 2003) (see Figure 2.4).

The coastal area is characterized by a Mediterranean climate (warm to hot, dry summers and mild to cool, wet winters). The southern desert is characterized by a desert climate (very hot summers and extreme diurnal temperature ranges) (FAO, 2005). The MNA's geographical variations are reflected in temperature differences; while the MNA countries predominantly lie in high temperature zones, the coastal strips experience moderate temperatures. The annual average rainfall in the MNA region is between 150-400 ml per year in the coastal areas, whereas the desert areas receive very little rainfall (FAO, 2005). Less than 5% of Libyan territory is economically useful (Federal Research Division 2005), as more than 90% of Libya's land is desert and semi-desert (CIA, 2010). Most of the agricultural activities are limited to the northern coastal strip, where most of the agricultural products are produced, although there are a few scattered oases in the southern desert, which mainly produce dates (see Figure 2.5).

The climate and the topography of the MNA region are the main drivers for the spread of population. The south is sparsely populated in all MNA countries and most of the population are concentrated in the coastal areas. In Libya, as in Algeria, living conditions and amenities are rudimentary outside the oil-exploitation areas (IUCN, 2003). The spread of population in all five countries has been similar, due to the similarity in climate and topography. According to the GAI (2008), about 85% of the Libyan population live in the north coastal areas.

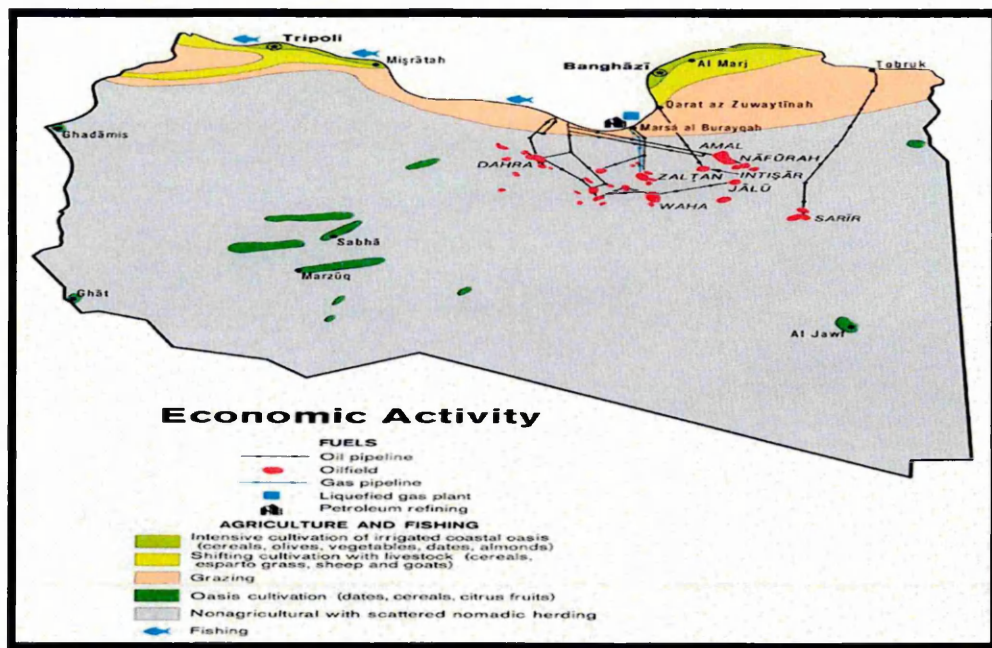
The population is concentrated intensively in the urban areas, and it is less concentrated in the rural areas where most of the agriculture and fishing activity takes place. Compared to its neighbours, Libya has the smallest population, numbering about 6.5 million (World Bank 2011).

**Figure (2.4): Topography of Morocco, Algeria, Tunisia, Libya and Egypt:**



Sources: <http://exploringafrica.matrix.msu.edu/teachers/curriculum/m16/activity1.php>

Figure (2.5): Map of Libya to show the distribution of agricultural activities:<sup>24</sup>



#### 2.2.2.1. Agricultural Performance in the Context of MNA Countries

The fact that the region relies so heavily on imports for its food supply is a major concern for policymakers, who view this as a threat to national food security and as a source of political vulnerability (Shetty, 2006). For many countries in the region, poor agricultural performance has a negative effect on food self-sufficiency and food security. Beaumont and McLachlan (1985) argued that the food self-sufficiency ratio of the region has fallen annually. At the same time, the arable land area has fallen year-on-year. Meanwhile, the importance of agriculture has often been played down, owing to the strength of the oil and mineral sectors. Janssen (1993, p 507) argued that "in North Africa, oil and minerals are widely considered to be the foundation resources that serve economic growth and development. Agriculture is often neglected, not only by the countries of the region themselves but also by the development banks and the donor agencies".

On the other hand, most MNA countries have long experience of socialism, although they have practised it differently; agricultural problems in most of the socialist countries are identified mainly according to the general economic system. Historically, socialist

<sup>24</sup> Source: <http://www.maps.nationmaster.com>

countries have been successful in mobilizing production resources to achieve relatively rapid growth in agriculture and for the development of the whole economy, but they have been much less successful in the effective use of these resources (Wong, 1986). Wilkin (1988) specified causes of the relatively low efficiency of agricultural sectors in socialist countries, some of which apply to a degree to agriculture in the MNA countries. He stated (1988, p 213- 214) that important reasons for the relatively low efficiency of resource use in socialist countries include inadequate functioning of the incentive system, accumulation of decision making power within the central administration, and lack of clear ties between the worker's income and the economic results of production.

Other reasons for the lack of growth in foodstuff production in some socialist countries in the MNA region include inconsistency within the food production sector of the national economy, lack of sufficient markets, and lack of necessary transportation equipment. Furthermore, inadequate storage and processing capacity have frequently led to waste or under-utilization of agricultural products. The almost complete elimination of the capital market (replaced by administrative rationing) resulted in the lack of a self-regulating mechanism for allocation of production factors from enterprises and branches with low productivity to units with higher productivity. The financial system is described by Kornai (1998) as one of soft budget constraints. However, the following sections provide a brief view of the agricultural sector in each of the MNA countries. The main purpose of this is to determine the status of the agriculture sector in Libya by means of an objective comparison with the other MNA states.

#### **2.2.2.1.1. Egypt**

According to the FAO (2009), agriculture remains a significant contributor to Egypt's economy, accounting for 20% of commodity exports. Egypt's agricultural sector remains one of the most productive in the world, despite the small area of arable land (William, 2002). The main crops cultivated in Egypt include rice, maize, wheat, beans and sorghum, sugarcane, sugar beets, potatoes, onions and tomatoes,. The castor oil plant also plays an essential role in agriculture in Egypt (Kassas, 1989).

The fishing industry in Egypt is one of the most important sources of national income. It is the main source of animal protein in the Egyptian diet and also contributes to other

industrial products. There are various marine and inland fisheries in Egypt: on the Red Sea, the Mediterranean Sea, various lakes, and the Nile River (Ibrahim, 2002) (Breikaa, 1997). According to the FAO (2009), Egypt has very long experience in cultivating fish, and fish consumption in Egypt is the highest in the region due to it having the high population.

Despite the large scale of fish production in Egypt, which reached 1.93 million metric tons in 2009, with 65% of this total coming from fish farming (AOAD 2010), Egypt is one of the main fish importers in the MNA region. Braniah (2010) pointed out that Egypt has a deficit in the fish trade balance of about 128 thousand tons. This is mainly due to the high fish consumption in Egypt. Abdel -Hadi (2004) highlighted that the fish industry is one of the major job resources for people in the rural areas of Egypt, who depend mainly on fishing for income. According to AOAD (2010), the Egyptian workers in the fishing industry and aquaculture accounted for about 27% of the total number of workers in the agriculture sector, and about 8% of the total labour force.

#### **2.2.2.1.2. Morocco**

Although highly sensitive to the climatic conditions, agriculture plays a major economic and social role in Morocco. As a non-oil economy, the agricultural sector contributes up to 20% of Morocco's GDP, and employs about 40% of the active population (AOAD, 2009). According to the report (FAO 2009), Morocco has strong potential to achieve self-sufficiency in most of the food production industries. The main crops are barley, wheat, olives, citrus fruits, and wine grapes. The major export crops are vegetables and citrus fruits. Other export crops are barley, wheat, sugar beets, tomatoes, sugarcane, olives, oranges, potatoes, peanuts, chickpeas and fish.

Morocco is one of the largest fish producers in the region. The fishing industry in Morocco is one of the leading sectors and contributes around 56% of the agricultural GDP, and around 45% of the agricultural exports. It also contributed 12.5% to GDP and around 16% of total exports in 2008 (AOAD, 2009). For a long time, fishing has been an economic mainstay of Morocco; it is the largest fish market in Africa. Production increased from 914 thousand metric tonnes in 2001 to 1162 thousand metric tonnes in 2008; it provides about 6.5% of the total labour force in the country (FAO, 2009). However, aquaculture in Morocco is not given due attention, only contributing around

0.19% of total national fish production (FAO 2009), which might be due to the high supply from natural fishing.

#### **2.2.2.1.3. Tunisia**

More than 15% of the working population is employed in agriculture in Tunisia, yet agricultural production is still insufficient to meet the needs of the Tunisia's growing population, and it contributes less than 10% of GDP (AOAD, 2009). While Tunisia remains one of the few Arab countries which are self-sufficient in dairy products, vegetables, and fruit, cereals and meat are mostly imported (Lachaal et al., 2002). Fish is Tunisia's second most important food exports after olive oil (Shetty, 2006). In 2008, the Tunisian fisheries sector represented 17% of the total value of exports. According to the FAO (2009) it contributed about 10% of the agricultural GDP. It also employed about 8.9% of the total agricultural labour, and about 1.6% of the total workforce in Tunisia. Aquaculture activity is mainly marine oriented and the fish production from aquaculture accounted for about 4% of the total fish production.

#### **2.2.2.1.4. Algeria**

According to the ADB and OECD (2008), since the discovery of oil in the late 1950s, agriculture has been a neglected sector of Algeria's economy. The oil sector contributed about 65% to GDP and that represented about 95% of total exportation. Agriculture has suffered from underinvestment, poor organization, and successive restructuring; it now contributes less than 6.5% of GDP annually, and it employs about 22.5% of the total workforce (AOAD 2009). Agriculture in Algeria is unable to meet the food needs of the country's increasing population. As a result, some 45% of its food is imported. Transportation and storage facilities are poor, leading to high levels of waste. Severe droughts, like that experienced in 2000, have proven to be enormously costly.

The main crops cultivated in Algeria are wheat, barley, and potatoes. Farmers have also had considerable success growing dates for export. A great variety of vegetables and fruits, especially citrus products, are exported as well. (Hammoucehe, 2011) argued that modest agricultural productivity growth along with rapid population increase, has led to Algeria becoming one of the world's largest agricultural import markets, with imports of food and agricultural products amounting to about \$2.8 billion per year. Regarding the

fishing industry in Algeria, the site and the potential of its sea coast suggest that Algeria should have a booming fish industry; but the actual production of fish is still low, due, largely, to the lack of exploitation of fish stocks in the territorial waters. Since the late 1990s, the Algerian government has initiated modernization programs to increase the sector's productivity; however, most of the fishing activities are still undertaken by small and family scale businesses (Bedrani et al., 2009).

#### **2.2.2.1.5. Libya**

Since the discovery of oil in the early 1960s, agriculture can no longer be considered the key player in Libya's economy (Allan, 1983). Despite the efforts that were made by the government to develop the sector and to increase its productivity, the oil sector took the lead and started to dominate the economy. The oil sector in 2009 represented 75% of GDP, and 97% of the total exports (World Bank, 2010).

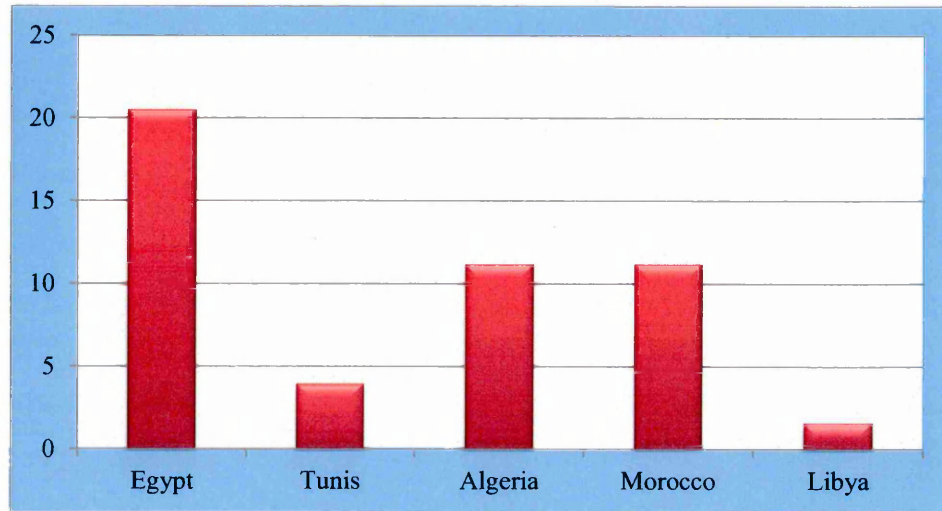
Libya's agriculture contributed only around 2% to GDP in 2008, and employed around 5% of the workforce (AOAD, 2009). The major barriers to the growth of plant and animal production are the lack of arable land and water resources, and shortage of labour supply, which has forced Libya to rely on foreign labourers (Alrainy, 2001). The major agricultural products are vegetables and fruit such as dates, almonds, grapes, citrus fruits, watermelons, olives, and tomatoes, which constitute about 80% of annual agricultural production (GAI, 2007).

In the case of Libya, the FAO and MBRC (2001) argued that fishing resources are not fully exploited and fishing activities are limited, with most of the fish products consumed locally. The sector contributed less than 2% to agricultural GDP and accounted for around 20% of the agricultural workforce, of which 75% were non-Libyan workers (Libya, Ministry of Agriculture, 2008). Aquaculture in Libya is a neglected activity, with a low production rate that has not exceeded 300 tons in the last 10 years (ADAO, 2010).

The indicators presented below identify the weaknesses of Libya's agricultural sector in comparison to those of other North African countries. Data from a wide range of years are not available in all cases; therefore the approach taken is to select the latest set of comparable data across all MNA countries.

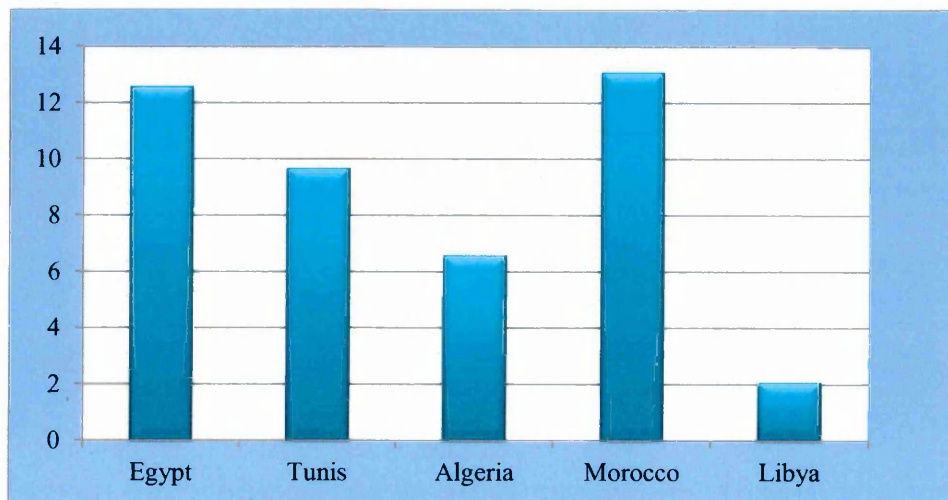
Charts (2.17) and (2.18) illustrate that Libya has the lowest growth rate and the lowest agricultural contribution to GDP among the MNA region countries. Chart (2.17) shows that Egypt has the highest agricultural GDP growth, followed by Algeria and Morocco, whilst Libya has the lowest by a big margin. As is evident from Chart (2.18), agriculture's contribution to GDP appears extremely low in Libya compared to all other MNA countries, with agriculture in Morocco and Egypt making the strongest contributions to GDP. According to statistics provided by AOAD in several publications in Libya, over the period of the policy of developing agriculture the agricultural GDP trend remained the same.

**Chart (2.17) Agricultural GDP in 2009 in the MNA countries:** (million USA\$):



Source: Arab Organization of Agriculture and Development (AOAD), 2009

**Chart (2.18) Contribution of the agriculture sector to national GDP (%):**

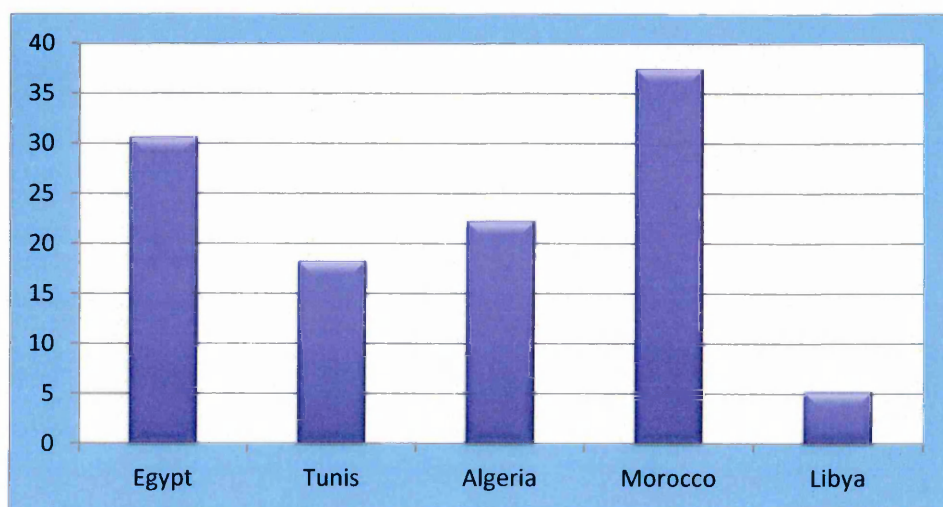


Source: Arab Organization of Agriculture and Development (AOAD), 2009

Chart (2.19) shows that the percentage of the total workforce engaged in agricultural employment in Libya, at just 5.2%, is very low compared to all other MNA countries,

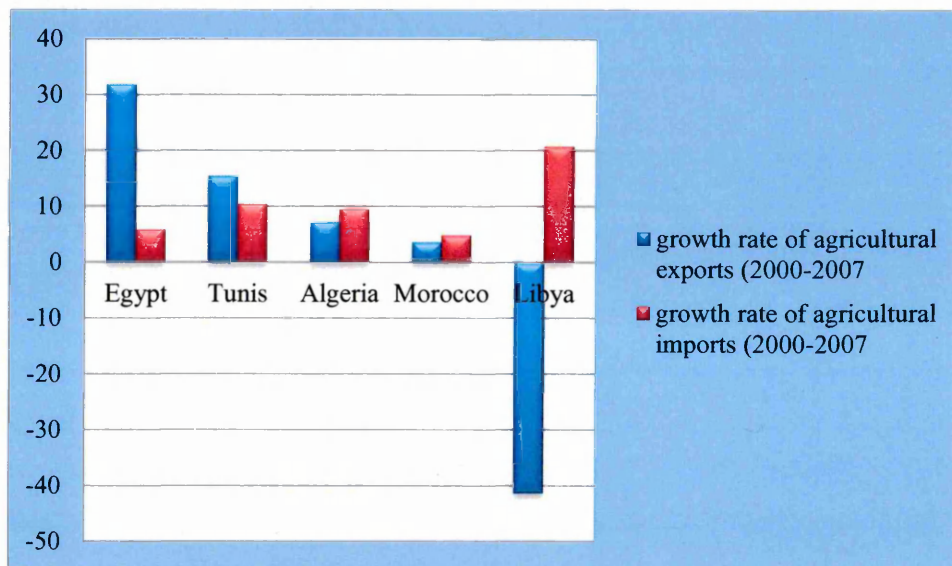
accounting for around 89,000 workers (AOAD, 2009). Morocco has the highest percentage, at 37.5%, followed by Egypt, at 30.7%. It seems evident that the employment in agricultural sector in Libya is not as significant as in the other MNA countries. It might be argued that Libya's small population compared to that of other MNA countries limits agricultural employment. However, other factors operate in this situation, as although Libya's population is about 6.5 million as opposed to Tunisia's 10 million, the disparity in agricultural employment is far greater. In Libya 5% are employed in agriculture whereas in Tunisia the total is 18%.

**Chart (2.19) Percentage of agricultural employment in relation to total employment among MNA countries:**



Source: Arab Organization of Agriculture and Development (AOAD 2009)

**Chart (2.20) Exports and imports of agricultural products among MNA countries:**



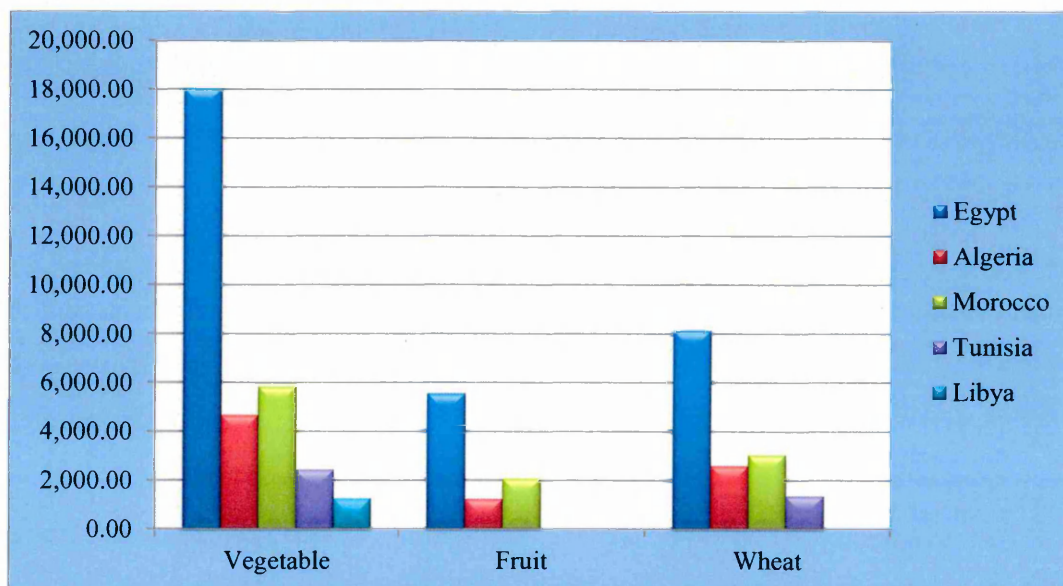
Source: Arab Organization of Agriculture and Development (AOAD 2009)

Chart (2.20) illustrates that Libya has the highest agricultural imports, with an annual growth rate of more than 20%. Compared to other countries in the region, Libya exports the least agricultural products, with a negative growth rate, which reveals a considerable deficit in the agricultural trade balance. On the other hand, Egypt has the strongest agricultural trading position, with a significant growth rate for exports and a low growth rate for imports. Meanwhile, Tunisia has a healthier agricultural trade balance than both Morocco and Algeria.

Agricultural production is another indicator of agricultural performance; Libya's agricultural production is lower than that of the other MNA countries. The figures presented in this section show some of the main agricultural products produced in the MNA countries. Libya seems to be the poorest performer despite the similarities in ecological conditions, especially with Algeria. Meanwhile, Egypt emerges as the highest producer of most agricultural products among the MNA nations.

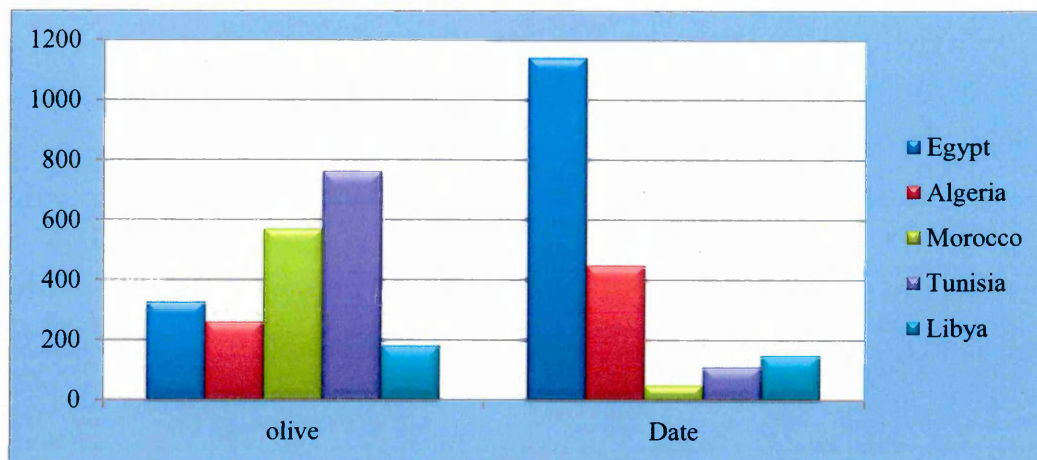
The figures presented in Charts (2.21.1, 2.21.2 and 2.21.3) indicate that all the other MNA countries, except Libya, exhibit very competitive values concerning their agricultural products; for example, Morocco and Algeria display very similar production levels for most of the agricultural products, except for date production, where Algeria was much higher than Morocco. Tunisia holds the highest position in olive production.

**Chart (2.21.1) Agricultural production (vegetables, fruit and wheat) in MNA countries:**



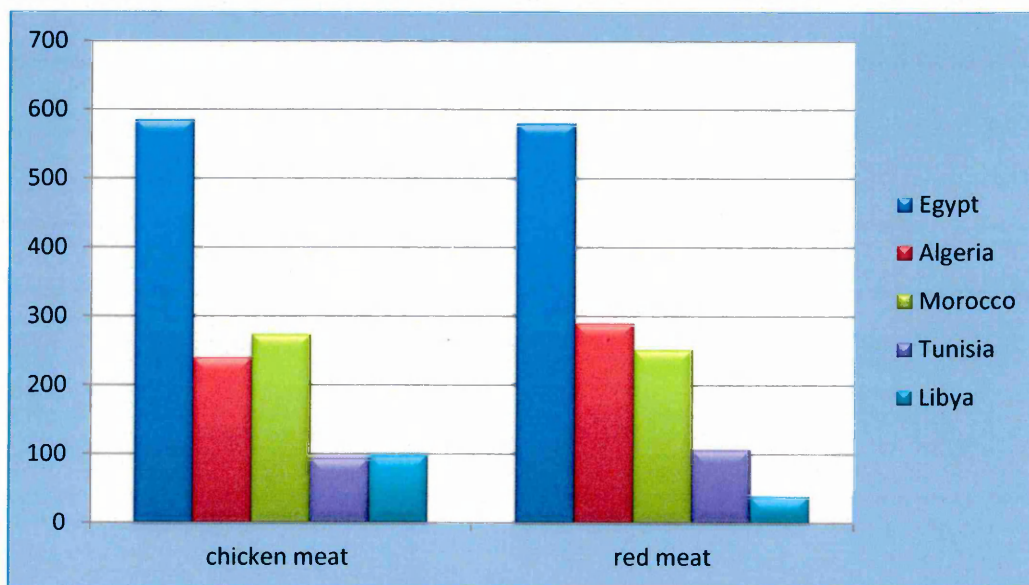
Source: Arab Organization of Agriculture and Development (AOAD 2010)

**Chart (2.21.2) Production of olives and dates in MNA countries:**



Source: Arab Organization of Agriculture and Development (AOAD 2010)

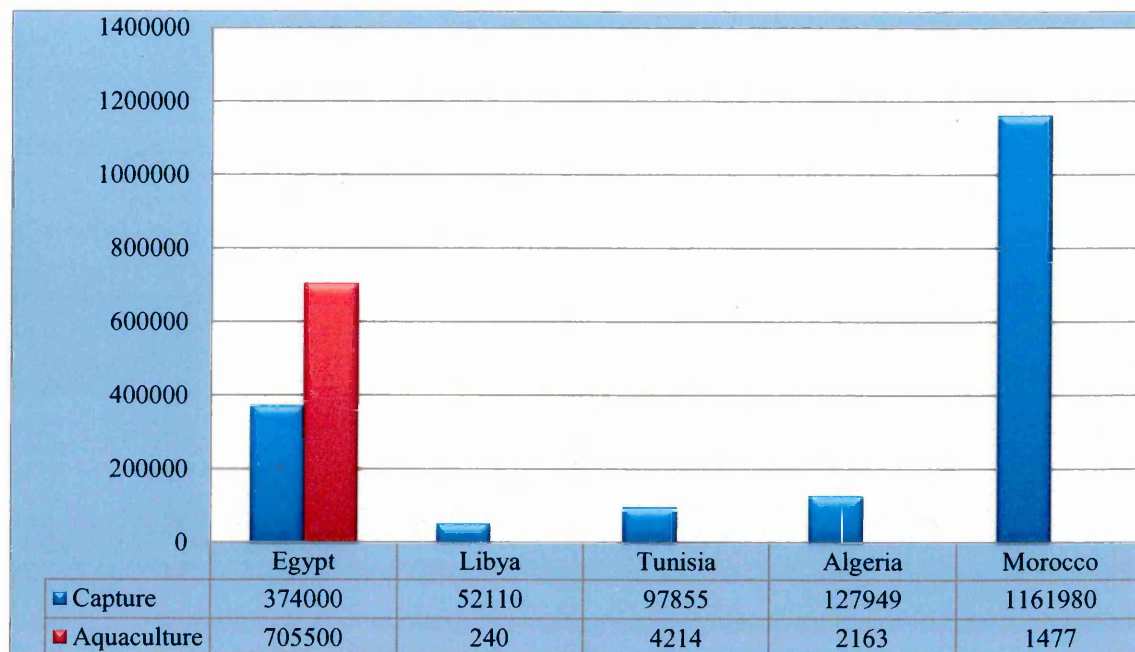
**Chart (2.21.3) Production of chicken meat and red meat in MNA countries:**



Source: Arab Organization of Agriculture and Development (AOAD 2010)

Although Libya displays respectable production levels for some agricultural products, in general, it has the lowest levels among the MNA countries. Larbah (1996) pointed out that Libya has realized self-sufficiency in some agricultural products, mainly vegetables, dates, olives and poultry. Chart (2. 22) shows fish production from natural fisheries and aquaculture in the MNA countries. The statistics demonstrate that Libya's fish production is the lowest, whereas Egypt's is the highest producer among the MNA countries for fish farming. Morocco leads wild fishery production, with more than one million tons produced annually from 2005-2009.

**Chart (2.22) Fish production (natural fisheries) in MNA countries (2008) by tons :**



Source: Arab Organization of Agriculture and Development (AOAD2009)

Despite the similarity in ecological conditions among the MNA countries, it seems that their agricultural performances differ; while Egypt has the best performance, Libya has the worst. The following sections reveal that although the agriculture sector in Libya has achieved notable growth, this sector is still not as significant as part of the overall economy as it is in other MNA countries, according to a range of indicators.

### **2.2.3. Historical Review of Agriculture Development in Libya (1952 - 2010)**

In this section, the researcher reviews the history of agricultural development in Libya from independence in 1952 until 2010, elucidates the situation of agricultural development and sheds some light on the main drivers of agricultural development. To coordinate with the previous chapter on economic development, the time line will be classified as follows (note that this classification was created by the researcher according to the explanation given in the previous section of economic development):

#### **2.2.3.1. Agriculture Development Before Oil Discovery**

El-Malkah (1969) noted that before the era of oil discovery and the time of independence, in the period between (1951-1961) Libya was mainly dependent on

agriculture. Allan et al. (1973, p 9) also confirmed that "before the discovery of oil, the resources that were identified for development were agriculture, fishery and tourism, in the following order of priority: 80% of the population lived in rural areas and most of the labour force was engaged in these sectors".

Libya has sought to develop its agriculture since then. Various plans were formulated to develop the agriculture sector, mainly via foreign agencies which were providing aid under UN supervision for the Libyan government to develop its economy. Libya's (pre-oil) economy was based mainly on agriculture, including crops, fish and livestock products. Agriculture provided many of the raw materials for the country's industrial sector, exports, and trade. Furthermore, the agriculture sector employed more than 70% of the labour force and supplied about 60% of the GDP (Allan 1973). These figures mentioned to the necessity to give agriculture top priority at that time. The growth of crop, animal and fish production might reflect the recognized interest of (pre-oil) Libya in the sector (Allan, 1981). However, many factors were hindering agricultural development. Allan et al. (1973, p 9) stated that "the paucity of financial resources, especially before the discovery of oil, the shortage of funds, the scarcity of capital and the lack of agricultural skills and technical knowledge, as well as the lack of adequate government machinery to formulate and execute co-ordinated national agricultural plans made it extremely difficult to gain speed in the development direction". However, Allan (1982) stated that in the first decade of independence, investment in agriculture was very limited due to the low GDP.

Development, at the time of independence, was mainly funded by foreign aid, and was concentrated on basic infrastructure such as electricity, roads, education, and health services. Allan (1981, p 76) postulated that "the aims of the first plan were unusual in that no emphasis was given to industry, and the expectations of agriculture were small". However, agriculture seems to have received considerable attention from planners as they allocated 9% of the 14.4 million LD budget to the agriculture sector, and 9% to capitalization of the National Bank of Libya and the National Agricultural Bank (Farley, 1971).

In conclusion, in the agricultural sector in the 1950s, the government achieved some progress in establishing the basic elements of modern agriculture among the rural societies, with a helping hand from the United Nations. Libya at that time considered

agriculture the main means of livelihood, but when oil was discovered, agriculture suddenly became a very unattractive and unprofitable activity (Attiga, 1971). However, before the discovery of oil a large number of people were engaged in agriculture, not because it was a thriving economic sector but merely because of the absence of an attractive alternative (Allan et al., 1973).

#### **2.2.3.2. Agriculture Development after Oil Discovery: the Era of Monarchy Government (1961-1969)**

The discovery of oil was the turning point in Libya's economy. It turned Libya from a poor country into a rich one (Attiga, 1973). El-Malkah (1969) stated that when oil was first exported in 1961, the money supply increased: from 9.8 million LD in 1955 to 35.7 million LD in 1963. This rapid monetary expansion, focused on the main urban areas of Libya, created a new economic situation. These urban areas witnessed a significant rise in standards of living and an increase in their population; this was followed by an increase in the demand for goods and services. This improvement caused a huge migration from rural to urban areas, which was the first manifestation of the new economy.

Agriculture was no longer an acceptable form of employment in Libya because oil had opened up an easier and more profitable form of employment. Allan et al. (1973) argued that the advent of oil provided many peasants with opportunities to engage in less exhausting and more remunerative work in the urban areas, resulting in a huge migration from rural areas to the cities. The labour ratio in agriculture decreased from about 35.7% in 1964 to less than 6% in 2010 (FAO and WEP, 2011).

Allan (1981) noted that one immediate result of this migration was the increase in food demand and per capita consumption in the cities due to the upsurge in the population and the improved levels of income among Libyans and foreigners serving in the oil industry and related activities. This should have provided strong motivation for agricultural production to increase in response to the higher price of food, but this did not take place because of the low status of agricultural technology at that time, along with the higher profits on investment in trade and the service sectors which encouraged people to invest in these sectors rather than in agriculture. The gap created by the sudden increase in food demand in the urban areas was bridged by imports. Imports of

food in 1956 (before the oil was discovered) cost around 5 million LD but this figure had increased to 27 million LD by 1968 (after the oil was discovered) (Libyan Ministry of Economy and Planning, 1970). Agricultural production increased by 4.5% during the period between 1963 and 1969. Despite the growth of production, food imports increased by 22% (Libyan Ministry of Economy and Planning, 1970). This was the first indication of the negative effects of the availability of high revenues from oil on the agriculture sector.

In the 1960s, the government started to support the agriculture sector, which was given more funds to increase agricultural production, and to halt the rapid migration to the major cities by protecting rural incomes. Attiga (1973) observed that the monarchy government endeavoured to encourage Libyans to work in agriculture. It supported the Agricultural Bank to provide credits and loans under easy terms for the purchasing of agricultural land; this also encouraged the private sector to engage heavily in agriculture. The substantial amounts of funds made available by this bank were a major reason why some Libyans chose to remain in the agricultural sector (El-Wifati, 1987).

The government also gave inducements to property owners to encourage them to put their lands to productive use, and initiated policies to increase agricultural wages to stop the rural-to-urban flow of labour. Moreover, it introduced various subsidies and land grant schemes; these policies were successful in keeping many Libyans in the agriculture sector in that era.

Once the government started to receive significant returns from oil exportation, it attempted to invest much of this revenue in the development of its various economic sectors, including agriculture (Dasgupta, 1973). Ghanem (1985) pointed out that about 70% of total oil revenue was earmarked to fund the national development plan (1963-1968/69). Of this total, 17.3% was allocated to agriculture (GCP 1997). According to the GCP (2001), the expenditure for development plans in the agriculture sector increased from 1 million LD in 1962 to 14 million LD in 1968. Allan (1981) maintained that the government was keen to develop agriculture. In the general national plan of (1963-1968), there were seven major targets, the second of which related to agriculture. Allan (1981, p 80) described the government's intentions as "to give special consideration to the agricultural sector, being the source of supply of most essential consumer goods, besides, being the source of income and employment for the majority of the people; to improve the productive efficiency of the farmers and labourer; and to

encourage the private sector to make investments in this field". This statement highlighted the attention paid to agriculture as a vital sector, and to people who worked and lived in agricultural areas. According to Allan et al. (1973, p 14) the first five year development plan for agriculture (1963-1968) was expanded to "provide food for the whole population and to improve nutrition by raising the quantity and quality of agricultural production, improving the economic conditions of farmers and providing education and training for farmers". It is possible to read between the lines and identify priorities; basically the aim of realizing self-sufficiency. Hence, it seems that self-sufficiency has long been a target for the Libyan government, even before the advent of the Qaddafi era.

The government was also concerned with exploiting the settlements that belonged to the Italians before independence<sup>25</sup>; it established the National Agriculture Settlement Authority in 1963, which was responsible for redeveloping and supervising the work in the ex-Italian settlement projects, also for starting a number of new settlements (El-Wifati, 1987). The main achievement of this authority was the success of reforming about 2839 ex-Italian farms with a total area of about 72000 Ha (National Agriculture Settlement Authority, 1968).

Despite these efforts to develop agriculture, and despite the active role of the private sector, the agricultural sector remained weak; it became less important compared to the construction, trade and services sectors, which all emerged with the discovery of oil. With the increasing gap between the planners and the delivery of the plans, and in the absence of administrative willingness to develop agriculture, both labour and capital were diverted away from agriculture (Fathaly and Abusedra, 1980). On the other hand, Allan (1973, p 166-167) stated that "the apparent shortage of labour in agriculture is not

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<sup>25</sup> In 1911 Italy wrested Libya from the Ottoman Empire, and settled in Libya until 1947, when they lost the Second World War. From that date and until 1951 Libya came under the administration of both Britain and France. During this period (from 1911-1947) the Italian government adopted many agricultural strategies to integrate Libya's economy with Italy's economy, under the ideology of Libya being the fourth shore of Italy. This integration was aimed to facilitate the settlement of Italians on the arable land of Libya. In that era of Italian colonization, agriculture improved significantly, with the Italian investors introducing modern technologies into the agricultural system, and they also developed new industries based on the agricultural outputs, such as olive presses, grape presses and grain mills. Also, there was a massive increase in agricultural exports, with the products mostly exported to Italy.

the cause of the unsatisfactory performance of agriculture... it seems that the importance of agriculture to the Libyan economy is bound to decline..." Within this trend, Libya's agriculture was left stranded at a low level of development, and consumers turned to the international markets to obtain most of their food necessities (Ghanem, 1985). However, although a new government emerged, with new visions and new ideologies, especially regarding agriculture, the agricultural sector did not achieve the anticipated improvements.

#### **2.2.3.3. Agriculture Development under Socialism (Jamahiriya Government): Implications of the Radical Socialist Measures (1970s to the mid-1980s)**

In 1969, Qaddafi took over Libya in a military coup, and he ruled the country for 42 years. During that period (as was illustrated in the Chapter on economic development) Qaddafi transformed Libya into a socialist planned economy. Qaddafi's government paid considerable attention to the productive sectors, including agriculture. Under the declared slogan of "realizing self-sufficiency", Qaddafi's regime was dedicated to the development of agriculture. Self-sufficiency, as a policy, was mainly inspired by Qaddafi's thoughts. In Qaddafi's opinion, improving agriculture would make Libya more independent, through realizing self-sufficiency, which would eventually lead to freedom. In his *Green Book*, he stated that "no freedom for a nation brings food from across the sea" (Qaddafi 1977). This statement, in particular, expressed the interest of Qaddafi in the policy of food self-sufficiency, and the considerable attention dedicated to agriculture as the main tool to achieve such a policy.

The socialist era witnessed three waves of change. Firstly, the agricultural sector occupied a different position in government priorities and intentions. Ghanem (1987) stated that big changes in the economy were inevitable. As the new regime adopted socialism, more emphasis would be placed on the productive sectors, including industry and agriculture, to make Libya more self-reliant and self-sufficient in its food supply.

Zarmouh (1997) described the attitude of the government towards the production sectors in the first half decade of Qaddafi's rule as the era of the Big Push. He (1997, p 6) stated that "because of the relatively big amounts of investment implemented, this phase can be described as a Big Push phase; agriculture was paid more attention and large areas of the land were reformed". He noted that the infrastructure in terms of electricity, roads,

dams, reservoirs, and communication networks was improved. The government's income from oil sharply increased in the 1970s; thus the allocations and expenditure on development programs increased. The GCP (1997) pointed out that the average rate of agricultural investment in the period between 1970 and 1985 accounted for around 18% of total government investments, which reached about 4.2 billion LD.

In this period, the government gave the public sector a major role in administering the agricultural sector; almost all of the agricultural projects were managed by the public sector. The agricultural marketing and the distribution businesses were also dominated by the public sector (Abidar and Lytimi, 2005). The government reduced the private sector's role and controlled the prices of agricultural inputs and outputs. The government took the lead in all economic activities, including agriculture after 1973. Aljady (2005) argued that the public sector failed to effectively manage the huge expenditures invested in the agriculture sector; consequently, during this period, agriculture did not achieve the targeted growth rates and did not realize the core aims of development. Abolishing the private sector's role had a negative effect on both farmers and consumers, especially in the marketing and distribution businesses.

The 1970s and 1980s witnessed many projects in the vital areas of agriculture, fishery and aquaculture. For example, the large reclamation projects of the Jefarah Plain were extended to 1.5 million hectares of irrigated and dry cultivation. Several projects were established in the Alakhdar Mountains, Fezzan, Sarir and Al Kufrah (Council of Reclamation and Reconstruction, 1977). In addition to these efforts, in the 1980s, the Libyan government accorded priority to projects that involved providing water, with the objective of developing agriculture in Libya. The increase in agricultural production resulted in the overuse of coastal aquifers and the depletion of water resources. Moving water from the south to the coastal areas was expected to support agricultural activity in Libya and the government's stated goal of achieving "self-sufficiency in food production". Allan (1987, p 129) contemplated that by looking "in a little more detail at the likely use of the new water of the MMR, it becomes even clearer that self-sufficiency will remain a major goal for Libya". The Libyan government started the project in 1984. While the first phase was finished in 1992, most of the project's four phases were implemented under the economic difficulties that have characterized the Libyan economy since the mid-1980s (see section 2.2).

On the other hand, the government encouraged individuals to work in agriculture through giving them the right to exploit farmland, but not to own it. The government supported agricultural workers further through building houses and providing them with heavy agricultural machinery, cattle and vehicles. These were provided in the form of loans (Etlopa, 2007). However, the farmers were not allowed to own these farms, even if they were the original owners, because nobody had the right to own land under Qaddafi's rule; In the *Green Book*, part two (Qaddafi 1977), Qaddafi stated that "Land is the private property of none. Rather, everyone has the right to beneficially utilize it by working, farming or pasturing as long as he and his heirs live on it - to satisfy their needs, but without employing others with or without a wage". This statement was issued as a law that had to be observed by everyone who worked in agriculture and demonstrates the strong involvement of Qaddafi in economic decisions.

With regard to fishing and aquaculture, extensive investment was allocated to ports, onshore infrastructure and services to improve the fishery sector, but many of these projects have still not been completed. Generally, the number of fishing ports has increased, as has the number of fishing fleets, compared to the 1960s. Many aquaculture projects were established. The first attempt at farming fresh water fish in Libya was in Wadi Al-Mjaineen and Wadi Ka'am in 1977, whilst marine fish farming began in Ain Al-Ghazala in 1983 (Al-Shagrony, 1984).

According to the GCP (1997) the government also built and maintained a considerable number of food processing factories, for local agricultural production, close to every agricultural region. For example, in the Green Mountain region, there are factories for fruit processing, dairy production and fodder processing. The essential target of this policy was to encourage peasants to increase their production, and also to increase Libya's ability to realize self-sufficiency through the provision of processed food. However, these factories were largely characterized by low productivity because of the low skilled management and the spread of corruption at the different administrative levels. On the other hand, these factories were forced to change their policy of receiving local agricultural products as inputs and to depend on foreign markets to provide inputs because the local agricultural sector failed to meet the demand for raw materials.

These efforts represented the government's commitment to agriculture and the high priority given to it. The public sector owned and ran all agricultural projects, but it

seems that little attention was paid to profitability and efficiency. As a result, the agricultural sector experienced low productivity and low efficiency; however, the government started to change its policy towards agriculture, paying closer attention to the role of the private sector (Abdulgader, 2004) (Etlopa, 2007). The next section demonstrates how the government dealt with the private sector after reducing the role of the public sector.

#### **2.2.3.4. Agriculture Development after Moderation in the Tone of Socialism (Late1980s-1990s)**

In the mid-1980s, the income from oil started to drop dramatically as a result both of price reduction and the decrease in production due to the international economic recession that reduced oil demand. Also, in 1992, the UN imposed economic sanctions on Libya, which increased the government's problems in managing the economy. The government responded to this by decreasing its expenditure on the economic sectors, including agriculture. The GCP (2003) indicated that the average rate of agricultural expenditure between 1986 and 2000 was about 16% of total government investments, accounting for around 1.6 billion LD.

Zarmouh (1998) argued that the planned investments of the five year plans of the (1980s-1990s) were sharply reduced; however, Larbah (1996) noted that the agricultural projects were not abolished. The government implemented various programs in support of agricultural investments across Libya, such as large-scale land reclamation, water resource development projects, settlement production projects, as well as large complexes for animal production. For example, work on the MMR project did not stop, despite the high level of funding needed, because for Qaddafi's government the motivation was political rather than economic. The water was transferred through huge pipes, with a diameter of about 4 meters, from the desert oasis aquifers of Sarir, Tazerbo and Al Kufrah, which had more than 1300 wells, sending a daily supply of 6.500.000 m<sup>3</sup> of fresh water to the coastal cities. More than 85% of the MMR water supply was allocated to agriculture. Of the remainder, 12% was allocated for municipal use and 3% for industry (Authority of the MMR, 1986).

According to the official site of the MMR<sup>26</sup>, agriculture was the main reason for establishing this project. The officials stated that "all these actions aim to expand the cultivated area and to increase the rates of agricultural production to achieve self-sufficiency and food security, which have become a weapon used for the oppression of peoples and for the looting of their willingness and their political and economic independence"<sup>27</sup>

The total installation costs for the three phases of the project reached about \$19.6 billion (Authority of MMR, 1998) and this did not include the cost of the fourth phase, which has not been completed to date. This was one of the most costly government projects. Ellasswad (1995) and Alghraiani (2004) clarified that the MMR project does not provide a total solution to the country's water needs; more water sources are required.

On the other hand, the government undertook certain economic transformation measures aimed at reducing dependency on oil and diversify the sources of income. The transformation policies adopted a more moderate socialist tone towards the economy and transferred more responsibility to the private sector. According to Larbah, in 1996 the agricultural sector was one of the prime targets for these measures. The government recognized the importance of the private sector's role in the economic structure. Undoubtedly, the private sector could contribute to increasing agricultural production and productivity. After 1987, the private sector became increasingly involved in the agriculture sector. The farmers and the private distributors were given the right to sell their products in the private local markets. This policy aimed mainly to improve agricultural productivity and the sector's efficiency for the purpose of increasing its contribution to the national economy (see section 2.1.2).

Within the programs of encouraging investment in the agriculture sector, the government has encouraged fishing activities and attempted to stimulate the consumption of fish products. In 1986, new fishing ports were built at Zuwarah and Zliten in the northwest of Libya, and ice factories were built at several coastal sites. Agreements for joint development of fisheries were signed with several countries,

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<sup>26</sup>[http://www.gmmra.org/en/index.php?option=com\\_content&view=article&id=76&Itemid=50](http://www.gmmra.org/en/index.php?option=com_content&view=article&id=76&Itemid=50)

<sup>27</sup> <http://www.gmmrwua.com/ar/index.html> (Arabic version)

including Tunisia and Spain. There is currently a tuna processing factory in Janzur and two others in Zuwarah and Al-Khoms for sardine canning, with small processing capacity (1,000 metric tons per year each). Many opportunities became available for fisheries, the fishing industry, trawling and aquaculture. The government established more fish farms and allowed the people to run aquaculture projects under the supervision of the General Authority of Sea Wealth, within a general plan known as "the project of aquaculture", set up in 1989 (Alkhomsy, 2005; Hamad, 2007; Orfy, 2008).

The period between 1970 and 2000 witnessed considerable interest exerted by Qaddafi's government towards agriculture despite the economic difficulties that have faced Libya since the mid- 1980s. But this attention did not lead to achievement of an acceptable level of growth in the agricultural sector or of any of the development goals. Etlopa (2007) mentioned problems that hampered the targeted development of the agriculture sector, such as the lack of monitoring of government expenditures, which encouraged the spread of corruption, lack of stability in agricultural institution structures and administration, lack of information systems, and bureaucracy.

Aljady (2005) also mentioned public sector monopoly of key projects and the main agricultural activities, the limited role of the private commercial sector and the decrease in support by the government for local farmers. Larbah (1996) referred to the weak agricultural infrastructure as one of the main difficulties facing the development of agriculture.

#### **2.2.3.5. Agriculture Development after the Introduction of Measures for Economic Liberalization (2000-2010)**

In 2000, the UN sanctions on Libya were lifted; thus, the oil revenues dramatically increased. Accompanying this positive event, significant economic and political changes were made in Libya. New measures of reform and economic liberalization were adopted after more than 30 years of socialism, planned economy and centralization. Alafi et al. (2010) observed that since 2003, Libya has witnessed the emergence of a new development paradigm based on economic reforms.

The national authorities were convinced, far more than ever, of the need for invigorating their agricultural policies and programs to conserve and efficiently utilize their natural

resources and to enhance their agricultural productivity to conform with the CAADP (Comprehensive Africa Agriculture Development Program) initiative under NEPAD (New Partnership for Africa's Development) (FAO and NEPAD 2006). Reforms were also needed to improve the incentive structure of farming and to take advantage of the potential opportunities deriving from the emergence of political and economic blocks and Libya's accession to the World Trade Organization (WTO).

Porter and Co-chairmen (2006) observed that agriculture was not exempt from the economic reforms; the decision makers were aiming to reform the agriculture sector in order to realize the priorities that had already been defined in the previous plans, which are as follows:

- Increasing the sector's contribution to realize food sufficiency and thus food security,
- Promoting the sector's contribution to GDP,
- Improving the sector's contribution to creating job opportunities,

On the other hand more emphasis needed to be placed on:

- Restructuring the sector to comply with the new policies of reducing government involvement in the agricultural sector and enhancing the private sector's role,
- Reforming existing agricultural projects to reduce inefficiency,
- Increasing the productivity of wild fisheries and aquaculture,
- Developing the food industry sector and reforming existing food factories,
- Reinforcing training and research programs.

According to the IMF (2005), the structural adjustments and economic reform programs arising from liberalization of the agricultural sector were aiming to improve Libya's agricultural output through:

- Increasing self-sufficiency for all basic commodities
- Supporting farmers via the reduction of taxes and credit rates
- Allowing farmers to sell their products at market prices
- Supplying extended services to farmers, particularly with regard to water use, seeds and plant protection
- Liberalizing the farming systems.

The new policy that aimed at abolishing public sector involvement and strengthening the private sector's role was applied to certain agricultural projects; also the foreign investment sector was permitted to take part in agricultural projects. The aim was to increase the sector's productivity. According to Alsaeh (2004) and Abdulgader (2004), funding was not the major challenge to improving the sector as the main obstacles were the lack of agricultural technology, of skilled workers and of modern management based on information technology. The authors pointed out that large scale projects such as the Al-Akhdar Mountain Project and the Tawergha Animal Husbandry Project were financed via indirect foreign investment in partnership with the government. Such projects have displayed higher productivity than any other public or private projects (ADB and OECD 2009) (CIA 2010).

In conclusion, Libya's agricultural sector has always been one of the government's main priorities, based on the *Green Book* philosophy, but even with the adoption of the new reform policies since 2001, including giving the private sector a larger role in the economy, and focusing more on associated infrastructure, the growth rate of agriculture (as measured by % of GDP) has been lower than that of the government investments in the sector. Moreover, the contribution of agriculture to national GDP has been lower than that of the other sectors (see figures in chapter 2, section 2.2). It seems that the government has failed to realize any of its primary development targets of self-sufficiency, economic diversification and providing job opportunities.

Despite the increase in government spending on agriculture, agriculture, in general, has failed to reach the stated targets of agricultural policies over the period (1970s - 2010). Thus, given its current status and performance levels it cannot satisfy the rising demand for food or contribute to overall economic development. The government assigned average annual expenditure of about 200 million LD for the period of 1970 to 2010 for the agriculture sector (CBL 2009).

The continuous reliance on oil revenues has allowed the government to fund the agriculture sector without being concerned about its efficiency. The high surplus in Libya's budget, which was also generated by oil revenues, has facilitated the import of food to fill the nutrition gap, and thus reduced the stress on the government that derives from the ideology of self-sufficiency. This contradiction between formal agricultural policies and what has really happened in provision of food to the people suggests that

these policies and ideologies for realizing self-sufficiency are merely political propaganda.

Larbah (1996) argued that the main hindrances to agricultural development and successful agricultural investment were the scarcity of water resources and arid climatic conditions; however, apart from the ecological difficulties, there are other significant problems facing the development of the agricultural sector. These problems have been reported by many authors, such as Abdulgader (2004); Aljady (2005); Etlopa (2007); Abidar and Lytimi (2005); Alsaeh (2004); and Khalifa (2006). These problems include, for instance, major dependence on foreign labour, lack of training programs, mismanagement, and complexity of the administrative procedures and transactions.

Etlopa (2007) and Abidar and Lytimi (2005) also touched upon other problems, including the lack of monitoring of government investments, which led to an increase in corruption levels; unstable agricultural institutional structures; and lack of information systems. In addition, there is the weak financing system (Khalifa 2006), the public sector monopoly of marketing activities and the limited role of the private commercial sector, the decrease in support by the government for local farmers (Aljady, 2005), and the weak agricultural infrastructure (Larbah, 1996). Other issues that have hindered the development of agriculture will be discussed later, in section 2.2.6.

#### **2.2.4. Agricultural Food Supply in Libya**

In this section, the researcher highlights agricultural supply in Libya, providing a brief overview of productivity of the main agricultural fields, including crop, animal and fish production. The main purpose of this section is to clarify the position of the fishery industry amongst the other agricultural activities in Libya.

##### **2.2.4.1. Horticulture and Crop<sup>28</sup> Production**

**Horticulture and Crop** production in Libya is the biggest agricultural activity; the number of workers involved is larger than in other agricultural activities. It is the main provider of food to local communities and of raw materials to the food industries which

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<sup>28</sup> Horticulture means here cultivating fruits and vegetables,

depend directly or indirectly on plant production. Plant production activity is dominated by permanent cereal crop production (barley, wheat, maize and alfalfa), which contributes 50% to agricultural GDP and employs 13% of the total agricultural labour force (GAI, 2008). Larbah (1997) identified that cereal crops occupy the largest area of cultivated land, followed by fruit crops and then vegetable crops; however, regarding total production, vegetable crop production is the highest, followed by fruit crops and then cereal crops.

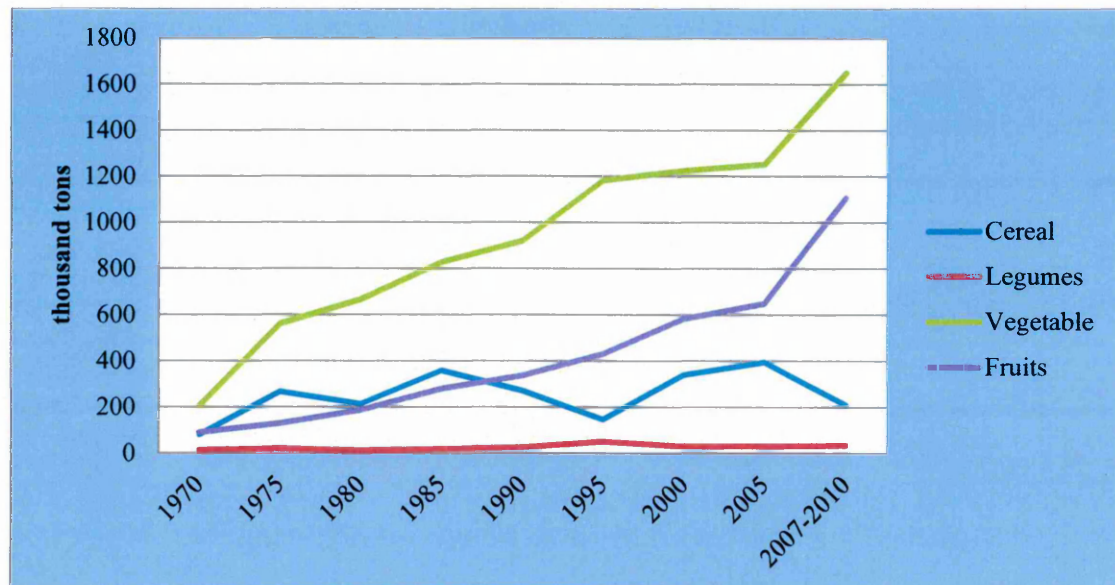
According to the GAI (2007) the main cereal crops for human consumption in Libya are barley, wheat and maize. They depend mainly on rain-fed agriculture. In the south, the government has established large agricultural projects for crop cultivation under the irrigation farming system, using groundwater. Cereal production, however, is very limited and cannot meet local demand, especially the demand for wheat to make bread, which is considered the core ingredient of the Libyan diet. The main leguminous crops cultivated in Libya are beans, peas, and small quantities of lentils and chickpeas. They rely on a supplementary system for irrigation. The demand for legumes is met mostly by imports. The local supply is less able to cover the local necessities due to the lack of productivity compared to vegetable and fruit production.

Vegetable crops are considered as direct cash and rapid yield crops and are therefore preferred for cultivation by most farmers. They are also important because the unconsumed surpluses of these crops can be utilized and processed by many of the food industries. The climate conditions of Libya's coastal plains are suitable for most of the vegetable species, such as tomatoes, onions, cucumbers, carrots, eggplant, cabbages, lettuce, water melons, potatoes, garlic, parsley, peppers and others. However, the local market is almost self-sufficient regarding vegetable production (Lytimi, 2002). The moderate climate in the north of Libya is also very suitable for fruit cultivation. The mountains of Alakhdar and Nafusah are appropriate for cultivating apple trees, peaches, figs and pears. The coastal plains are suitable for citrus, olives, plums, apricots and grapes. In southern Libya, date palm trees are cultivated widely. However, Libya imports some kinds of fruits which are not produced locally, such as mangoes, strawberries and bananas (GAI 2006).

As evident from Chart (2.23), all types of plant production showed fluctuations in growth; whilst vegetables dominated total plant production, followed by fruit crops,

legumes recorded the lowest production. According to the GCP (2001), the climate conditions, especially the rainfall season, have played a critical role in cereal crop growth. Also, most of the cereal producers tended to produce barley and alfalfa rather than wheat due to its high profitability, and the decrease in the governmental support to the wheat producers. Leguminous crops are cultivated much less than other plant products due to the lack of skilled workers required for their cultivation. Locally grown legumes are marketed fresh but dried legumes are imported (GAI 2006).

**Chart (2.23) Horticulture and crop production in Libya (thousand tons) (1970-2010).**



Sources: ( GAI AOAD, several issues ). Before 1970, it was difficult to find any statistics about plant production in Libya; The cereal crops do not include alfalfa production; The fruits do not include olives and dates.

Poor climatic conditions represented by poor soil and water shortages, as well as the lack of skilled human resources, have severely limited plant output. Larbah (1994) identified many reasons for the decrease in average productivity in plant cultivation in Libya, such as misuse of chemical fertilizers and pesticides, the high cost of agricultural mechanization, lack of agricultural markets, increased migration of local agricultural workers, and the spread of small scale farms, which has increased production costs and reduced production returns.

#### **2.2.4.2. Livestock Production**

Animal husbandry is still a significant activity, but it relies heavily on imported animal food. In the 1980s, livestock represented the largest income producing sector of

agricultural production. The government has instituted numerous measures designed to make the country self-sufficient with respect to its consumption of meat, poultry, and dairy products. Poultry and sheep are the main livestock species. Animal production contributes approximately 30% of the total agricultural GDP, providing meat, milk, dairy products and eggs (Al-Masri, 2000).

Animal production, particularly of sheep and cattle, has decreased, especially in the 1990s. According to Abidar and Lytimiy (2005), currently, animal production cannot contribute sufficiently to realizing self-sufficiency, and the import of food products and live animals represents the third largest import item, i.e. 14% of the agricultural imports in 2006 (GAI 2006). The main reasons were low productivity, increased local demand, and the high cost of fodder.

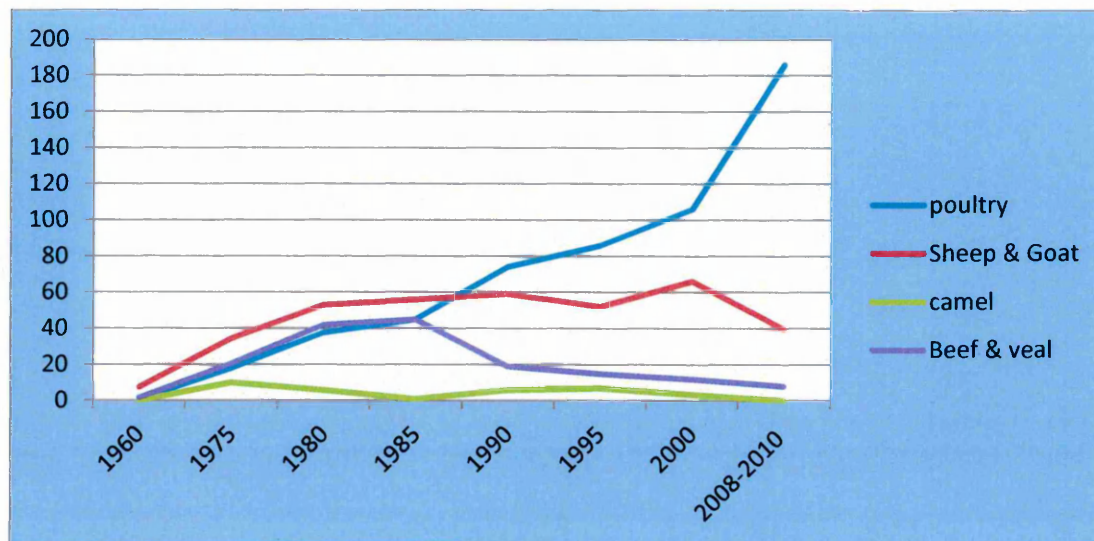
Animal production for human consumption in Libya covers mainly poultry, sheep, goats, cattle and camels. Libya's poultry production is a major aspect of the agricultural sector. It provides more than 50% of the total meat production in Libya (ADAO 2010). Chicken breeding involves meat and egg production; however, Libya imports hens from overseas. The system of poultry production has been upgraded from small traditional forms of production to more intensive and large scale poultry farms in order to meet the increasing demand (Grepay, 2009). The main drivers of the significant growth in poultry productivity are the short production cycle, which means the capital rotations are high compared to other types of animal production, and the high acceptability of poultry consumption in the local markets.

According to GAI (2007), sheep and goats dominate ruminant livestock production despite the decrease in the number of sheep from around 6 million head in 1985 to around 4 million in 2007. Sheep and goats are used essentially for meat production; they provide 85% of red meat, and 40% of the total meat production.

Thousands of hectares of pastureland had been fenced along the coastal regions for use as cattle breeding stations as well as livestock-fattening pens (Bianci, 2003). Since the 1970s, the number of cattle (particularly dairy cattle) has increased, as has meat production. Cattle meat production (beef and veal) provided about 11% of the red meat, and 4% of the total meat production (GAI, 2007). Camel meat production is the lowest compared to the other animal products. It contributed just 2% of the red meat

production. Although the numbers of camels and cattle are similar, meat production for these animals differs, with cattle meat production being much higher than camel meat production.

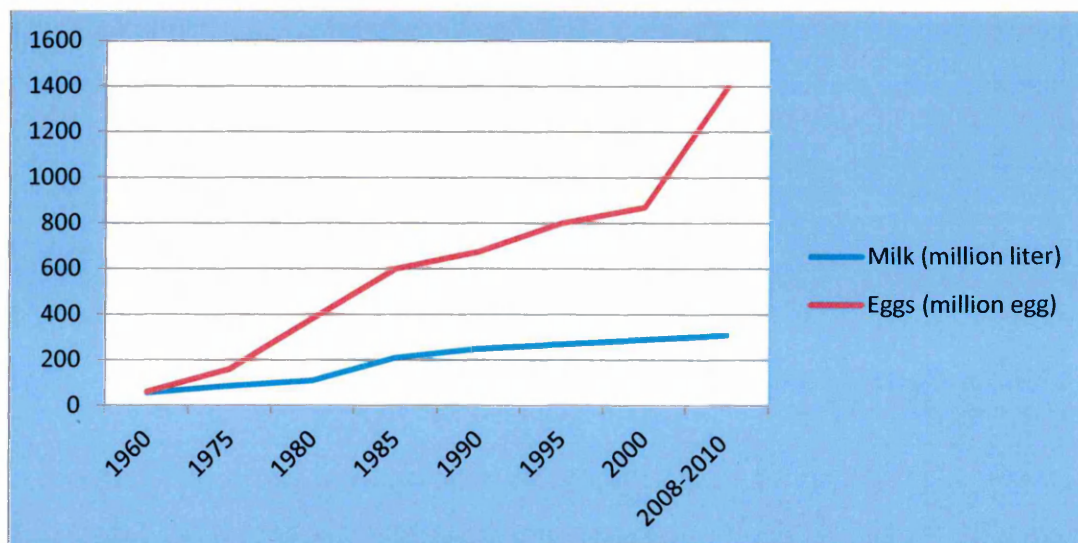
**Chart (2.24) Totals for livestock production in Libya by thousand tons:**



Sources: Ministry of Agriculture and Animal and Sea Wealth (1960) GAI, 2009 AOAD, 2010.

From Charts 2.24 and 2.25, it becomes evident that since the 1960s there has been a significant increase in poultry production, including meat and eggs; sheep and goat meat have exhibited a relatively sustained increase since the 1960s. However, production has started to decrease since 2000. Beef and camel meat production are lower than poultry, sheep and goat production. According to Al-Ezzabi (2002), Libya has realized self-sufficiency in poultry and eggs.

**Chart (2.25) Totals for milk and egg production in Libya:**



Sources: Ministry of Agriculture and Animal and Sea Wealth (1960) GAI, 2009 AOAD, 2010.

According to Al-Masri (2000), the supply of animal products fails to meet the national demand for several reasons: high temperatures and humidity result in reduced feed intake, low red meat yields, and reproductive problems. Moreover, limited feed resources are affected by inadequate rainfall which affects, in turn, the growth of natural pasture and the availability of forage and roughage. In spite of the improvements in feed manufacturing; the supply of concentrates is directly affected by the availability of raw materials imported from abroad.

Furthermore, other negative aspects that have badly affected the supply of animal products include the shortage of equipment and farm machinery, poor organization of collection, storage, poor marketing and distribution of livestock products, lack of collaboration between the farmer associations, lack of technical administration, insufficient planning of research in animal production, coupled with limited finance for equipment and machinery.

#### **2.2.4.3. Fish Production**

Fish production, in general, derives from two main resources: natural fisheries, where the fish naturally live, such as in seas, rivers and lakes, and fish farms, in sea water or fresh water, either using open systems such as farming in seas, lakes, rivers or closed systems such as farming on land using different types of tanks or on earth ponds. However, whatever the system, farming fish is done under controlled conditions. In Libyan fish production is mainly from the sea, in addition to small contributions from fish farming (Alkhmsy, 2008).

Marine fishing in Libya is still undeveloped and marine fisheries have not been fully exploited, despite the large supplies of tuna and sardines and other fish species (Alzgozi, 2006). The lack of trawlers, ports, and processing facilities has contributed to low fishery output. However, the lack of sufficient plankton in the waters along Libya's coast, which is necessary to sustain any appreciable quantity of fish, is also responsible for the meagre productivity (Alkhomsy, 2008). Generally, fishing activities are limited, with most of the fish products consumed locally. The sector employs the smallest percentage of the total agricultural Libyan work force, although the number of individuals involved in this activity increased from 2077 in 1970 to 17920 in 2008; however, the sector is highly dependent on foreign fishermen According to the statistics

of the GAI (2008), the total work force of 17920 was estimated to include 13344 foreign fishermen, accounting for 74.5% of the total fishery work force. The sector has contributed the lowest share to agricultural GDP (Otman and Karlberg, 2007). In 2007, per capita fish consumption was much lower than the international standards of 16.9 (FAO 2010) Kg/year, at only 6 kg/year (Hamad, 2007).

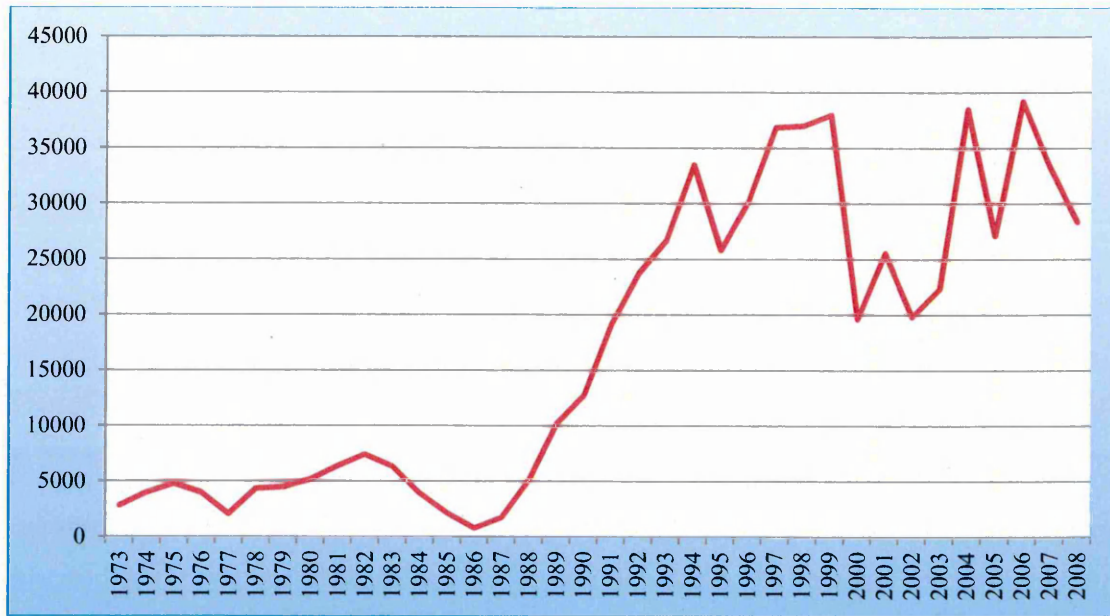
With about 1900 km of coastline and a large continental shelf of about 63595 km<sup>2</sup> on the Mediterranean, of 100 to 200 m in depth (AlKhomsy, 2008), researchers have referred to the large quantities of white fish, tuna and unexploited sea sponges and coral reefs. However, Al-Orfy (2008) observed that the waters of the Mediterranean Sea, especially the eastern and southern coasts, are low in nutrients necessary for increasing the fish stock, which has led to a reduction in the total productivity of the Mediterranean Sea.

According to the FAO (1996) there have been no completed technical surveys to define the volume of fish stocks in Libyan territorial waters. However, in 1977, the SOGREAH Company presented a report on fish stocks available for annual exploitation on the western coast of Libya at a depth of (0-400 m), concluding that the average amount available was around 14022.5 ton/year. In contrast, average fish production in the period of the 1970s and 1980s was much lower, at around 4600 tons. The potential has not been exploited to date because of the lack of fishing fleets. Statistics from the 1980s indicate that the fishing fleets comprised around 600 boats, most of which did not exceed six meters in length (Ministry of Agriculture, 2008).

Libya's fishing fleets have improved since the 1980s. According to the Frame Survey FS00, FAO (2000), there are about 3650 different types of artisanal fishing units in Libya, of which 51% are out of operation, and the rest are being operated. FAO and MBRC (2001) noted that about 55% of Libya's vessels are located on the western coast near the Tunisian border, at Misurata port, 22% are in the middle coastal strip from Sirt to Ajdabiya and 23% are in the eastern region coast between Benghazi and the Egyptian border. The FAO reported in 1995 that there were about 91 units in the industrial fleet. However, this number had increased by 2008 to 270 units. For the period from the 1950s to 1960s, fish production increased gradually from about 1440 tons in 1952 to about 4220 tons in 1967 (Ministry of Agriculture 1973). Hamad (2007) argued that fish

production from natural fisheries, has fluctuated since the 1970s due to shortages of the foreign fishermen on whom the sector is heavily dependent.

**Char (2.26): Fish production in Libya from natural fishing by ton from 1973 to 2008:**



Resource: General Authority of Information (2008).

Chart (2.26) illustrates a dramatic increase in fish production since the late 1980s, and that maximum production was 39215 tons. Alzgozi (2006) pointed out that the increase in fish production was mainly due to the increase in artisanal fishing units. The number of fishing units increased from 338 in 1979 to about 2240 in 1992. Although Hamad (2007) indicated that increased government expenditure on the sector contributed to an increase in total fish production, it has been identified that the government, since the late 1980s and early 1990s, has decreased its expenditure on all economic sectors due to the huge decrease in oil revenues and the economic sanctions (see section 2.1.2).

Compared to the other MNA countries, Libya has an undeveloped fishing industry, despite the long coast line and the rich supply of exportable fish such as tuna and sardines (Abo-khdair and Alzargani, 2005). There are many fish species in the Libyan waters, the most common economic species being the small pelagics (sardine, mackerel, horse mackerel, bogue, etc.) and the blue fin tuna, in addition to mixed demersal species (mainly red mullet, bream, groupers, amberjack, common dentex, triggerfish, common pandora, octopus, cuttlefish, squid, shark). According to Alkhomsy (2008), there are

about 271 species of fish in Libya's territorial waters; about fifty of these species are commonly found in the local markets.

The slow growth of the fishery industry could be traced back to the low investment in fishing boats, ports, and processing facilities, and the lack of skilled fishermen (Abokhdair and Alzargani, 2005). It could also be traced back to mismanagement of the sector and the widespread corruption. Despite the modern paper projects and the big budget allocations to the sector, there is little evidence of progress on the ground.

Fish farming in Libya started in the mid-1970s. Al-Shagroni (1984) pointed to the limited inland (freshwater) aquaculture projects that have been trialled at several sites on a pilot basis, under the supervision of the Institute of Sea Wealth. The first successful attempt to cultivate fresh water fish was in April 1977 in the lake at Wadi Al-Mjaineen, with about 60,000 carp fries; then in 1978, the lake was farmed with 160,000 carp. Additionally, the lake at Wadi Ka'am was farmed with 200,000 tilapia fries. He claimed that marine fish farms have greater development potential than fresh water fish farming.

According to the report of the Ministry of Agriculture (2008), the number of fresh water fish farms (for local consumption) has decreased to 389. Although several projects have been established since then, production remains insignificant. Minor cage culture of tilapia is carried out at Al-Majdube Lake, Abou Dzira Lake, and Tawergha. A project was started in the late 1980s that aimed to raise tilapia and other species, using waste irrigation water from an agricultural scheme, at Brak El-Shati, in the desert some 650 km south of Tripoli, but unfortunately it remained dormant. Since the 1980s, fresh water fish farming has spread, especially in the south of Libya, using lakes and irrigation tanks. Alkhomsy (2008) mentioned that the number of small local private farms has reached 790. He argued that despite the fact that marine fish farming has most chance of success in Libya because it is less affected by ecological factors, most of the fish farms have closed due to the lack of experienced workers in this field.

Marine fish farming started in 1989, using the lake at Ain Al- Ghazala to cultivate mullet, sea bass and eels. Also, a major hatchery and a grow-out pond complex have been established in Ain Al-Ziana to cultivate sea bass and sea bream. A few years later, several farms were established in different locations on the coast. The Libyan Ministry of Agriculture (2008) reported that recorded marine farm projects numbered around 174.

However, very limited data and information have been published about marine fish farming in Libya, especially those related to the development process, and economic studies. According to the AODA (2010) Libya's fish production from aquaculture is much lower than stated by the FAO figures. This disagreement in opinions confirms the lack of reliable information and statistical rigour in this sector.

Generally, the main farmed fish species which are most acceptable in the Libyan local markets, are eels, sea bass, sea bream, tuna, and tilapia. Despite the huge efforts exerted to build and extend fish farming activity, it is still much lower than that in the other MNA countries. Fish production is at inconsiderable levels; the production estimates are very low. There is little formal data regarding fish production from aquaculture in Libya; however, according to FAO statistics in 2010 production reached about 240 tonnes in 2009, which was considered very low compared to the sector's potential and compared to government spending on sector development.

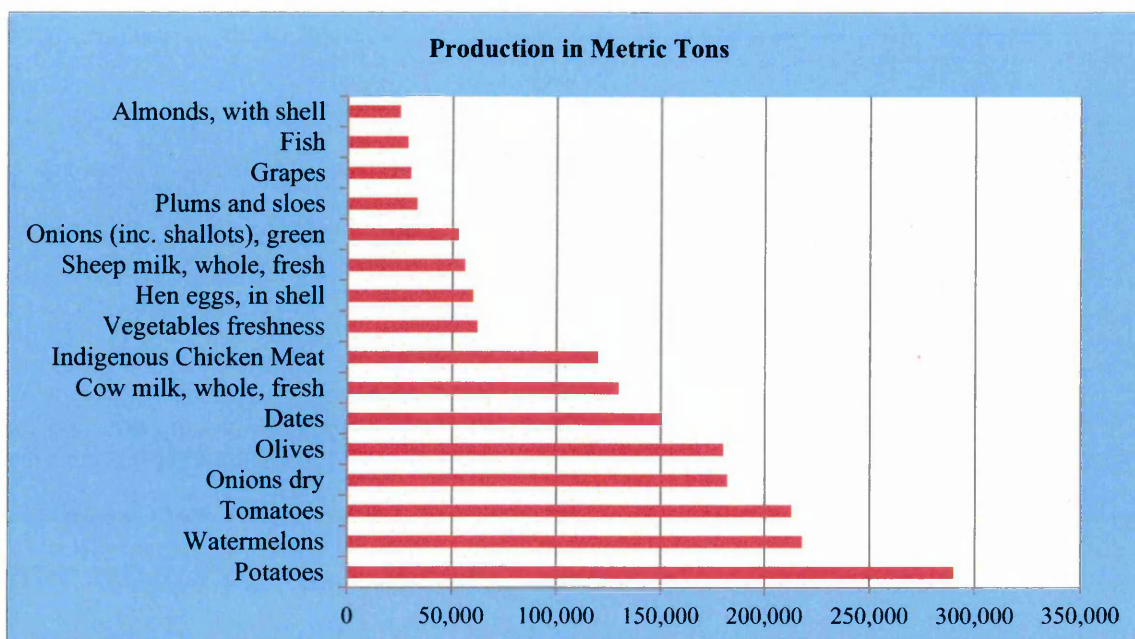
In conclusion, from the discussion above, the productivity of aquaculture is among the lowest in the agricultural sector, whilst vegetables and poultry showed the best performance. Chart (2.27) below demonstrates the high productivity of vegetable activity compared to the other agricultural activities, followed by olive, dates and poultry production. Levels of agricultural production, including those for cereals, red meat and fish production from both natural fisheries and fish farming, are very low compared to the neighbouring countries (see section 2.2.2), and in comparison to the efforts exerted by the government to increase the sector's productivity (see section 2.1.3.).

According to the GCP (2001), the sector's low productivity is due to ecological difficulties, lack of skilled workers and of markets, and inefficient management. Amer (2004) argued that high production costs are another constraint on the agriculture sector. Production costs are high because of such as high transport costs due to the long distances involved, poor soil quality and lack of the necessary fertilizers for crops, and the inadequate input of advisory centers, which has to be strengthened as it represents the only link between research and farmers.

Additionally, in Libya, modern agricultural technology is mostly only used for state-managed large agricultural projects, with few small farmers benefiting from this

technology. Smallholders need to be convinced of the benefits they are likely to draw from agriculture technology, e.g. technology related to seeding, fertilizing, irrigation, hybrids and certified seeds, harvest and storage, and using agricultural research results.

**Chart (2.27): Libya's Main agricultural products (production quantities in 2008):**



Sources: FAO, 2008

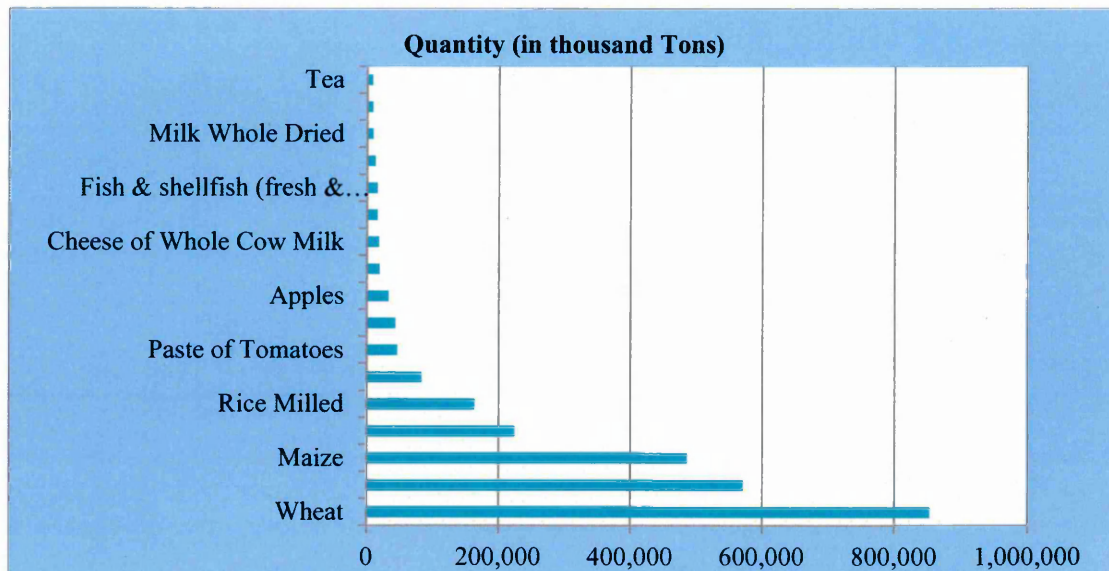
## 2.2.5. Agricultural Foreign Trade

In this section, the researcher demonstrates the extent to which Libya depends on the international markets to provide its food needs. As the previous review of agricultural production demonstrates, due to its limited agricultural potential, Libya has been producing just 25% of its food necessities, and has imported 75% (ADB and OECD 2009). In the course of time, the value of food imports has more than doubled and is hence considerably greater than in 1958; therefore, a large part of the oil wealth between 1960 and 2010 was spent on imported food products (Elwifati, 1987) (Bruce, 2010) (EU-Libya Trade, 2009). Libya is highly dependent on imports for much of its food supply, particularly sugar, cereals, fats and oils. Food imports represented 17.1% of the total import costs in 2007 (CBL, 2008).

The statistics in Chart (2.28) indicate that wheat and maize are the main imported cereals. To cover the local needs, imported wheat accounted for 74% of the total wheat consumed in 1992 (Larbah, 1996), and this percentage increased in 2007 to 84% of the

total wheat consumed (AOAD, 2009); this situation reflects the decreasing level of local wheat production and the increase in local demand due to the increase in population.

**Chart (2.28): Libya's main agricultural commodity imports in 2008:**



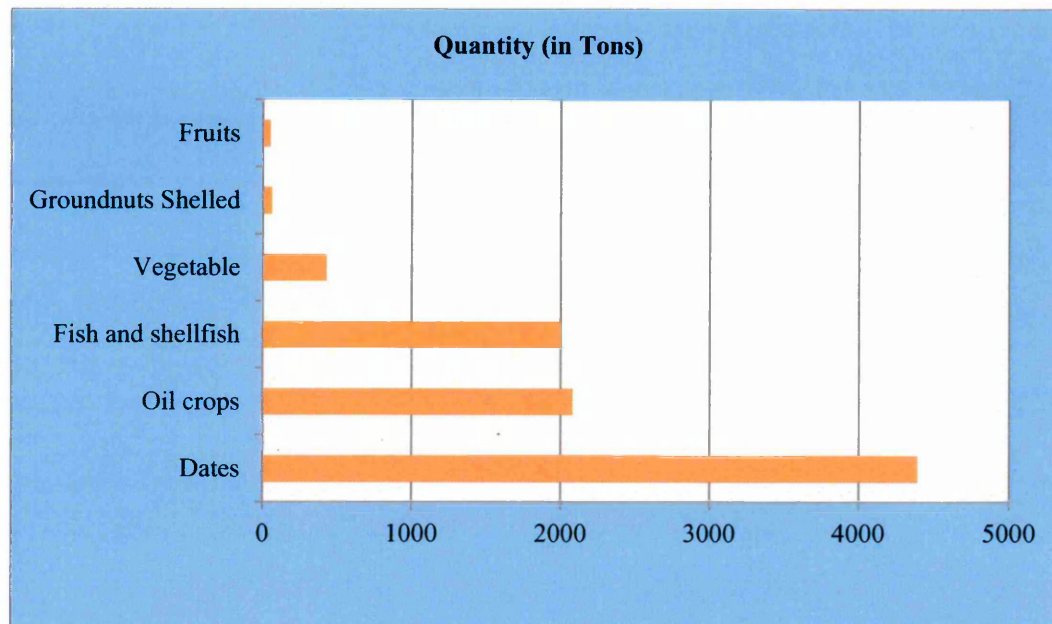
Source: (FAO), 2008

There are some essential agricultural foods which are 100% imported, such as sugar, tea, rice and coffee. In contrast, some essential agriculture foods are 100% produced locally, such as chickens, eggs, most vegetables, olives and dates. However, as Chart (2.28) indicates, the dominant commodity imports are wheat, maize, sugar, rice, red meat, pastry, dried milk, tea, coffee and cocoa, together with processed dairy products. Over the last five years (2005-2010), Libya has imported more than \$3922 million worth of food and agricultural products (ADA0 2010).

In contrast, Libya's exports are dominated by petroleum, natural gas and hydrocarbon based commodities, which accounted for 97% of total exports in 2008. The remaining 3% consists of agricultural products (EU-Libya trade, 2009). The main exported agricultural food products are dates, oil crops (groundnut oil, and olive oil), fish, shellfish, tomatoes, garlic, potatoes and fruit (see chart 2.29); but they remain quantitatively limited (GAI, 2006). In 2006, the fish export values accounted for about 44% of the total value of agricultural exports (GAI, 2006).

The trend of importing fish has increased substantially over recent years, especially for processed pacific tuna, although exports of Atlantic blue fin tuna have declined. According to the GAI (2006), fish exports are categorized by small volumes of high value premium blue fin tuna and frozen fish fillets sold to the Japanese and Korean markets, with higher volumes of common varieties sold live or chilled to nearby Tunisia, Malta and Turkey. Fish imports in 2006 were said to exceed \$33 million, and fish exports in the same year were just \$7.5 million, although others have argued that these figures are not fully trustworthy.

**Chart (2.29): Libya's main agricultural commodity exports in 2006:**

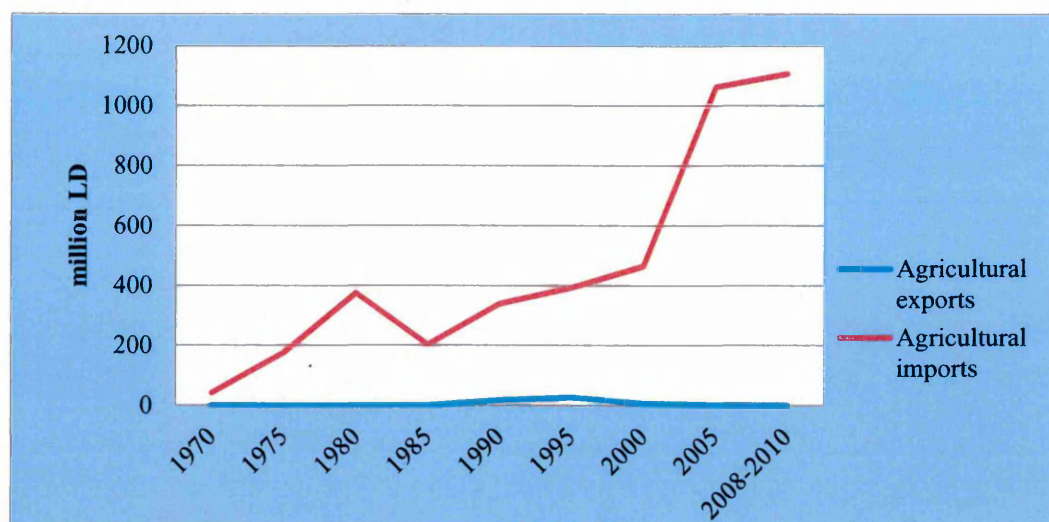


Source: GAI, 2006

Al-Orfy (2008) and Alzgozi (2006) noted several illegal operations concerning tuna fishing from the Libyan waters by foreign fishing fleets, which work illegally with Libyans under the cover of some national authority such as the Authority of Foreign Investment. These who conduct such operations gain profits of millions of US \$, but such operations are not accounted for in the national data base. The main reason for such events is the increased corruption at different government levels.

The gap between food importation and exportation (see Chart 2.30) indicates that local demand is higher than national production. For example, according to the Ministry of Agriculture (2008) and the CBL (2008), fish imports increased from 3500 tons in 2000 to about 15700 tons in 2007, and fish production increased as well; Libya produced 19.6 thousand tons in 2000, and it increased its production to 33.3 thousand tons in 2007.

**Chart (2.30) Agricultural food imports and exports trend in Libya:**



Sources: GAI 2006, AOAD, 2010

Agricultural food exports have been decreasing annually. The CBL (2008) declared that export values declined from 12.5 million LD in 1998 to less than 1 million LD in 2007. In contrast, total agricultural food import values increased from 525.4 million LD in 1998 to more than 1100 million LD in 2007. Chart (2.30) shows the significant increase in agricultural food imports compared to the insignificant growth in agricultural food exports. However, imports increased sharply from 1970 to 1980 before dropping during the first half of the 1980s as a consequence of the oil price crisis; they then picked up again during the second half of the 1980s. Imports have sharply increased again since 2000 following the suspension of sanctions in 1999. Briefly, agricultural food imports have, to a large extent, been affected by external factors which affected Libya's economy as a whole.

In conclusion, Libya's external agricultural trade has been suffering from high deficits whereby importation is much higher than exportation. The sector's status reflects the traditional characteristics of agriculture in Libya, with sufficient quantities of a limited number of agricultural products being produced for the domestic markets, whilst production of other essential agricultural foods hardly covers the domestic demand; however, most of the essential foods are imported. Despite the relatively small population compared to other MNA countries, the sector has largely failed to cover local needs; instead, Libya has become more dependent on the revenues from oil exportation to provide these needs.

## 2.2.6. Agriculture Government Policies

There are many factors that affect agricultural supply: climatic conditions, scarcity of water, lack of arable land, limited and unskilled workforce, funding resources, and government policies, among others. However, in this section, the researcher focuses on government policies. Ecological factors are excluded because they are not critical factors in all agricultural scopes. While they are important for horticulture and some animal husbandry activities, they are not so significant in the case of fishing or aquaculture activity.

Agricultural policies are an important part of general economic policies, which are essentially designed to accelerate the development of agriculture. Discussion of the literature demonstrated that agricultural development was a key priority of the Libyan government (see sections 2.1.2.3, 2.1.2.4, 2.2.3.3, 2.2.3.4, and 2.2.3.5), the emphasis mainly deriving from the ideology of self-sufficiency as described in the *Green Book*. These policies are now discussed, regardless of whether they achieved their targets or not. Examples of the targets specified in the general economic development plans for the different periods, as described in the sections above, demonstrate clearly that agriculture was given considerable attention. Although maybe only a few targets in the economic development plans made explicit reference to agricultural development, many of the other targets implicitly included agricultural development; for example, diversifying the economy involves the agriculture sector as it is a non-oil sector. Likewise, maintaining a high level of employment and raising per capita income through increasing productivity.

In addition, the development plans showed considerable allocations for agricultural development, as illustrated by charts (2.14, 2.15, and 2.16). These allocations were stated to support agricultural policies in achieving their targets. Even when Libya was going through difficult times in the late 1980s and the 1990s, the agricultural policies continued to adopt the same targets of realizing self-sufficiency, contributed to by economic diversification among other targets. For example, the responsibility towards the MMR project that started in 1984 did not stop despite the huge reduction in government expenditures in all economic development expenditure following the drop of world prices in oil and imposition of UN sanctions on Libya (see section 2.1.2.4).

This example specifically underlines the strong commitment by Qaddafi to finishing the targeted stages of MMR in the determined time, despite the fact that it exhausted the national budget in the period of economic crisis (1986-2000), as the first four stages cost about 20 billion US\$ (Alghariani, 2004). Because of the political interest of Qaddafi in this project, it was announced in the Libyan government media as the eighth wonder of the world. At the same time, many projects for social and physical infrastructure, such as hospitals, schools, roads and housing, had been suspended due to the budget deficit.

Also, general economic policies for reforming the economy, for example, the policy of increasing the role of the private sector, included strong emphasis on the agricultural sector. Larbah (1996) stated that the agricultural sector was one of the prime targets for economic reform, aimed mainly at improving agricultural productivity (Alsaeh, 2004). Porter and Co-chairmen (2006) reinforced that agriculture was not exempted from the economic reforms; the decision makers were aiming to reform the agriculture sector in order to realize the priorities defined in the previous plans, specifically: increasing the sector's contribution to realize food self-sufficiency and thus food security, promoting the sector's contribution to GDP, and improving the sector's contribution to providing more job opportunities.

The world's interest in improving and developing agriculture has increased over time; this was seen as achievable through the application of effective agricultural policies. In Libya, these policies were mainly based on the political ideology of "self-sufficiency". The Libyan government allocated a considerable amount of funding to implement these agricultural policies and to apply the related agricultural development plans (see section 2.1.3). Etlopa (2007) summarizes the main goals of the agricultural policies in Libya as follows:

- 1- Realizing self-sufficiency in the basic food needs,
- 2- Increasing agricultural productivity,
- 3- Improving the growth rate of agricultural GDP,
- 4- Enhancing agriculture's contribution to GDP.

Many agricultural policies have been adopted by the government during different periods of time which, to a large extent, have affected the agricultural food supply. For example, pricing policies, investment policies, marketing policies, support policies,

lending policies, and many others; in this section, the researcher reviews some of these policies.

#### **2.2.6.1. Agriculture Marketing Policy**

Despite the huge government investment on agricultural marketing infrastructure such as roads, ports, markets, storage, and communication networks, government planning and policies with respect to improving the marketing system were inefficient (ADAO 2009). The agricultural marketing system in Libya has suffered from mismanagement that has hampered the efficient utilization of the existing excellent roads and communication networks. The efficiency of the agricultural marketing system is low by all standards, as reflected by the lack of marketing information, high post-harvest losses, and bottlenecks in distributing farm products, inefficient packaging, grading and handling processes (Aljady, 2005).

From the 1970s, according to El Wifati (1987), the private sector was banned from all marketing functions, and the public sector dominated all the economic activities including agricultural marketing. However, Libya has experimented widely in the field of agricultural markets; in the 1980s, the agricultural marketing processes (locally and internationally) were monopolized by the public sector under the name of the National Agricultural Marketing Company (NAMC), which was established to replace the free market. According to Qaddafi's beliefs, the free market was seen as an allocator of resources and incomes and an exploiter of the farmers. One of the main duties of this company was to buy the agricultural production from the farmers and then to sell it to the consumer. It was also responsible for determining the prices.

The General Authority of Planning, Economic and Trade (1996) stated that over several years, the NAMC failed to handle agricultural marketing adequately for numerous reasons, such as distribution difficulties in serving consumption centres that were numerous and located far from each other, increased production losses and over-staffing due to the company having a monopoly over agricultural products, the size of the company's task, which was beyond the available marketing professions and skilled managers, reluctance of the local community to buying from the company's centres due to their distrust of the marketing approaches of the company, as they preferred to practise their own traditions, which implied buying agricultural products fresh from the

retail shops and from weekly or daily popular markets. Sehib (2005) remarked that the agricultural marketing of the 1980s was accompanied by low marketing efficiency, and that the NAMC has been hampered by a lack of skilled workers and poor management. In general, this has negatively affected the farmers, as they have been unable to realize an acceptable level of profits.

On the other hand, marketing agricultural input was limited to two large public companies: the National Company for Light Supplies, responsible for marketing operation input for such as fertilizers, pesticides, seeds, and the like; and the National Company for Heavy Equipment, responsible for marketing agricultural machinery and equipment such as tractors, harvesters, ploughs, pumps, irrigation equipment, and the like. Both companies failed because of the reluctance of local farmers, due to the lack of supply choices, and the high costs (NEPAD and FAO, 2006).

Aljady (2005) argued that the policy that the public sector monopoly over agricultural marketing processes was ineffective mainly due to the high profit margins deriving from high costs, which had a negative impact on agricultural prices and, consequently, agricultural incomes. In the 1990s, the government attempted to reform its agricultural marketing policies. The farmers and private distributors were allowed to market their products in private local markets, side by side with the National Agricultural Marketing Company branches (NEPAD and FAO, 2006). The aim was to improve the efficiency of the agricultural marketing functions and services in order to allow market tools to control supply and demand, to encourage the private sector to enter this type of business, and to support establishing market centres in providing marketing functions, including sorting, grading, storing, distribution, etc. Aljady (2005) identified the main aspects of agricultural marketing policy in Libya:

- Determining the standards of agricultural inputs and production and marketing services.
- Organizing the agricultural marketing system and jobs, including sales and purchases, transfer and storage, and marketing facilitation, including packaging, grading and information services.
- Monitoring the market performance through laws and procedures to avoid a market monopoly.

Abdulgader (2004) argued that this policy could not improve the efficiency of agricultural marketing in Libya, even though the involvement of the private sector and the determination of prices were still controlled by the government. In the late 1990s, the government completely abolished the role of the public sector and gave the lead to the private sector and the free market forces in the agricultural marketing process. The public marketing companies were dissolved and privatized and the retailers were encouraged to take over agricultural marketing and the distribution processes. Although the government's main aim was to improve agricultural productivity, this trend greatly increased the efficiency of the marketing system. Despite these efforts, the large scale agricultural markets are still highly inefficient and require more investment, especially if the sector is to benefit from Libya's unique geographical location with regard to Europe and other Eastern markets and to utilize the available export windows (GCP, 2001).

According to Abidar and Lytimi (2005), agricultural marketing in Libya is very traditional. The main market for most of the agricultural products in Libya is the local markets, where the agricultural production is transferred to the consumers. Usually this type of market occurs in areas near the producing centres. The two main agricultural marketing channels are the wholesalers and the retail markets. The wholesale markets are hampered by mismanagement and lack of facilities, especially storage and refrigeration equipment, quality monitoring and marketing information. The retail market is the direct route to the consumer and includes Supermarkets, butchers, chicken and egg retailers, fruit and vegetable retailers, and cooperative associations, which are widespread in high consumption areas.

The lack of stable and comprehensive marketing policies, has led to the mismanagement of the marketing system in Libya, lack of sufficient marketing infrastructure and lack of efficient planning to improve marketing efficiency (Aljady, 2005). On the other hand, these policies were also hampered by such as the lack of a marketing information system, especially information about expected demand, financial and administrative corruption, lack of monitoring of the applied policies, and production volatility and price fluctuations due to insufficient production planning (GCP, 2001).

#### **2.2.6.2. Agricultural Pricing Policy**

In most of the socialist countries, control over prices by the government is common, with the market not having any role to play. In Libya during the 1980s, the government controlled the prices of agricultural inputs and outputs, for the purpose of increasing the consumer's ability to buy enough food and in the meantime to support the farmers and increase agricultural income (General Authority of Planning, Economic and Trade 1996). However, after the changes made in the government's policies since the 1990s, the private sector started to play a larger role; this, to a large extent forced the government to revise the pricing policy, and to allow the market forces and the demand and supply motivations to play their role in defining prices (Aljady, 2005) (Etlopa, 2007).

#### **2.2.6.3. Agricultural Credit (Lending) Policy**

The governments in most of the developing countries have recognized their responsibilities towards the farmers. They have adopted different funding methods to provide loans to farmers under easy conditions, and low interest rates, through formal and informal authorities, such as agricultural banks and agricultural cooperatives. Agricultural finance has played an important role in improving agricultural activities in developing countries, where most of the local farmers are unable to fund their agricultural work. Loans have been the main funding resources for helping farmers to operate their farms and to continue their agricultural activity (Khalifa, 2006). In Libya, Abdullah (1990) argued that the agricultural lending policy was aimed to support the farmers to extend their agricultural production, and to facilitate their agricultural operations. However, the long-term target is to realize agricultural development and to improve agricultural income; thus increasing the living standards of the farmers (Saadi, 2008).

Allan (1973) stated that in Libya lending policy has been in operation since the 1950s. It originally aimed to provide loans to farmers through Agricultural Banks, established in 1955. According to the Agricultural Bank (2006), the total value of loans provided by the bank since 1969 has reached 1.648 billion LD; with about one billion provided in the four years from 2002-2006. These loans have been provided in three forms:

- Short term loans: for providing operation inputs such as fodder, fertilizers, seeds, etc. In 2006, they accounted for 9% of the total loans provided by the Agricultural Bank.
- Medium term loans: for providing agricultural fixed inputs, such as tractors, harvesters, pumps and other agricultural equipment. In 2006, they accounted for 77% of the total loans provided by the Agricultural Bank.
- Long term loans: for establishments such as well digging, founding new farms, and land reclamation. In 2006, they accounted for 14% of the total loans provided by the Agricultural Bank.

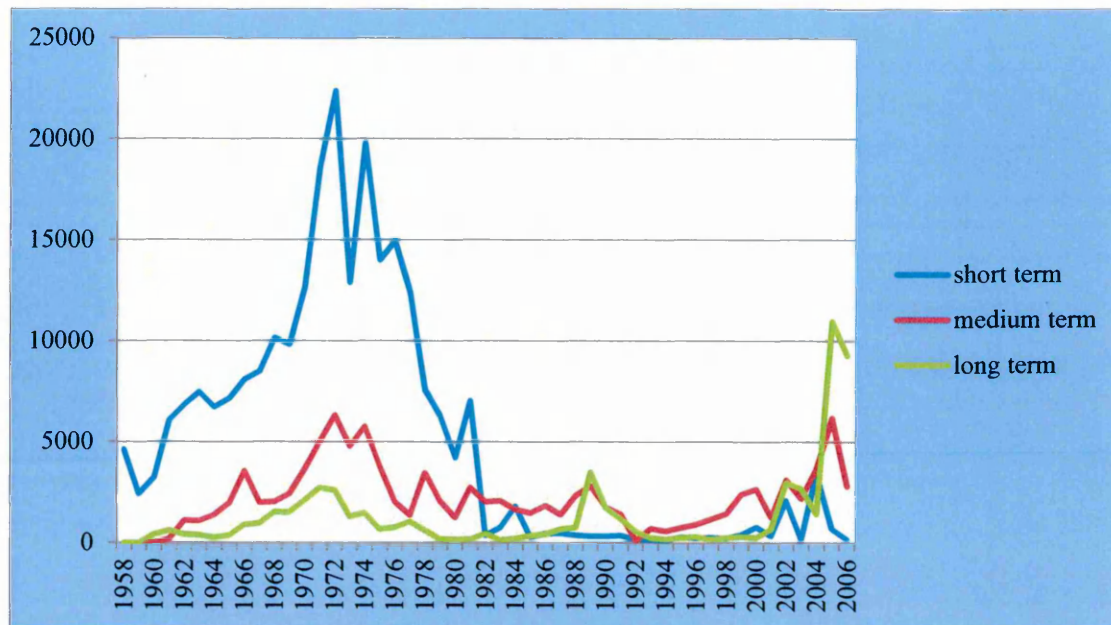
According to the Agricultural Bank (2006), these loans were distributed among agricultural activities as follows: 30% was allocated to animal husbandry, 18% to improving water resources, 17% to establishing food processing factories based on agricultural production, 16% to fishery equipment and aquaculture projects, 9% to agricultural inputs including fodder, seeds, fertilizers and transplants, 4.5% to poultry processes, 3.1% to developing and establishing palm farms, and 1.8% to agricultural machinery.

Chart (2.31) displays loans provided by the Agricultural Bank since 1958. The provision of loans gradually increased until 1969. The first five years of Qaddafi's rule, from 1969 to 1974, witnessed a dramatic increase in the total number of loans provided; this reflected the increased government interest in improving the agricultural sector. They reached a maximum of about 27000 loans in 1974, but then started to decrease and reached a minimum of 2800 in 1982. Edwik (2007) pointed out the difficulties facing Libya's economy after the fall of oil prices, followed by the imposition of the UN sanctions, which led to a dramatic decrease in oil revenues. This situation has negatively affected the banking system and the funding ability of all banks in Libya. This might account for the low level of loans provided by the Agricultural Bank since the 1980s.

Alzargany (2001) argued that the loans provided by the Agricultural Bank have increased at a fluctuating rate since 1985; for example, the growth rate was highest, at 21%, in 1989, while it fell to its lowest rate, of 0.3%, in 1993. The commercial banks have shared the Agricultural Bank's responsibility, being allowed to provide loans to farmers for agricultural activities. The loans provided by the commercial banks also had fluctuating growth rates, mainly due to a variety of agricultural reasons, and changes in the trend of bank policies, which are framed by the Central Bank of Libya. The total

values of loans provided by the Commercial Banks were higher than those provided by the Agricultural Bank; in general, the amount of loans provided by both increased threefold between 1985-2000.

**Chart (2.31) Number of loans provided by Libya's Agricultural Bank (1958-2006):**



Source: Agricultural Bank (2006)

Agricultural lending policy has not played an important role in financing agricultural investments, although it has contributed to supporting farmers and agricultural activities. Despite the positive relationship between the growth rate in loans provided and agriculture GDP growth, Khalifa (2006) argued that lending policies role in agricultural development was still weak. This was mainly due to the weaknesses of finance system and the lack of skilled management and the lack of sustained financing policies regarding agricultural development.

#### 2.2.6.4. Agricultural Support Policy

Alzargany (2001) and Khalifa (2006) argued that this policy was adopted to complete the credit policy; supporting policy was adopted to provide heavy agricultural machinery and agricultural inputs to the farmers at prices lower than those in the market. It was intended mainly to increase agricultural production, and thus to increase agricultural income. The government also provided support to farmers through buying their production at generous prices, which encouraged farmers to increase their production, but this policy has been suspended since early 1990.

Implementation of such policies has in general faced many challenges, including lack of connection between the policy makers and the policy appliers, lack of administrative stability in the state's authorities, lack of information bases (Etlopa, 2007), lack of efficient police implications due to widespread corruption (Abidar and Lytimi, 2005), and lack of clear government vision regarding the analysis of the limited agricultural resources and the local demand (Abdulgader, 2004). These difficulties and others have affected the efficiency of government policies which aimed to develop and improve the agricultural sector, as is reflected in the sector's poor performance, and it largely failed to realize the core goals of development: food self-sufficiency and economic diversification.

## **2.2.7. Agricultural Development Targets**

### **2.2.7.1. Agricultural Food Self-sufficiency**

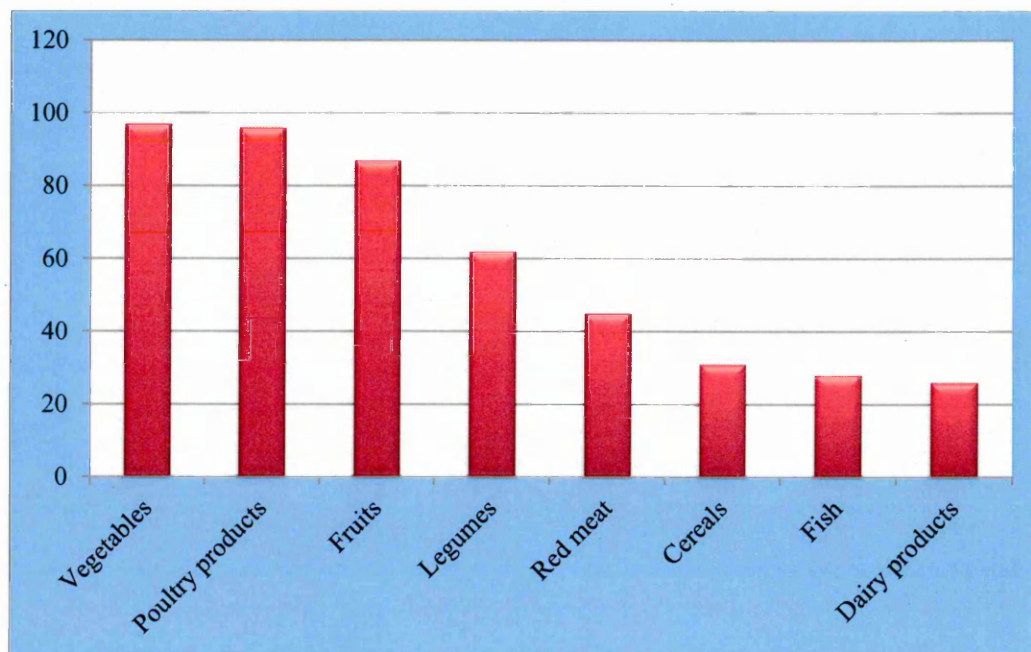
The demand for food in Libya has rapidly increased. The average growth rate of total food demand has been higher three times than the average growth rate of the population; however, the average growth rate of food import demand has been five times higher than the average growth rate of the population (El-Azzabi, 2002). The average growth rate of the total demand for the period (1970-2007) was around 8.7%, while the average growth rate of food import demand was around 11.1% over the same period (Alsach, 2010).

According to Egzaima (2007), cereal crops, and especially wheat, are the main food needs in most of the world's countries; wheat is the staple food of the Libyan diet, consumed principally as bread, couscous and macaroni, whilst rice consumption is spreading. The most consumed pulses are chickpeas, lentils and dried and green beans. Fruit and vegetable supply is characterized by high availability and high local consumption, a wide variety of seasonal vegetables and fruit is freely available. The self-sufficiency percentage is about 97.5% as they are locally produced. Olive oil is produced locally, but maize oil is totally imported. Meat, principally poultry, lamb and beef, is an important part of the Libyan diet; poultry is mainly produced locally; beef is imported in frozen form; however, lamb is produced from both local and imported sheep. There is heavy consumption of dairy products, especially milk, whilst fish and

sea food consumption has increased over the last two decades. According to the AOAD (2009) the consumption capacity of fish and sea food increased over the period from 1981 to 2002.

The ADAO (2009) noted that while average per capita consumption of wheat, rice and oil has decreased, at the same time, consumption of foods such as poultry, lamb, fish and dairy products has increased. Sehib (2005) added that price and individual income are the core factors affecting the quantities of food consumed. The following is the order of amounts of staple foods consumed in Libya, arranged from the most consumed to the least consumed: wheat, rice, macaroni, red meat, dairy products, vegetables, fruit, poultry and fish. Hamad (2007) observed that fish prices are higher than those of lamb, beef and poultry.

**Chart (2.32) Average self-sufficiency rates among Libya's main agricultural food products (1970-2008):**



Source: El Azzabi, 2002 & AOAD, 2009.

Despite the government's efforts to realize self-sufficiency in food production through improving the agriculture sector, Libya still depends heavily on foreign markets to provide its food necessities (Abdulgader, 2004) (Sehib, 2005); it imported more than 75% of its food needs in 2009 (FAO, 2008). Although the FAO (2008) predicted that self-sufficiency in Libya is now impossible and will remain so in the future, Libya is self-sufficient in agricultural foods such as vegetables, eggs, dates, olives and poultry

meat, despite the significant food gap for many important foods. Chart (2.32) shows that Libya realized self-sufficiency in vegetables and poultry, and to some extent in fruit production. However, it is still largely insufficient in fish, cereal crops, red meat and dairy products. The figures in Chart (2.32), for example, explain that Libyan fisheries covered just 25% of the local demand for fish, and that 75% is covered by fish importation.

El-Azzabi (2002) argued that the increased food gap in fish production reflects the increased demand for fish and the lack of fisheries in Libya. Hamad (2007) pointed out that the demand for fish gradually increased due to the increase in Libya's population, although fish prices and local habits are also important factors in determining fish consumption.

Libya seems to face many difficulties in meeting its declared aim of self-sufficiency in food, with most of its agricultural production being much lower than the domestic demand. Although Larbah (1996) argued that these difficulties are determined by ecological conditions and the lack of skilled workers, the FAO (2008) contended that the target of realizing self-sufficiency under these conditions is unattainable; thus, implementing the agricultural policies which were framed under this ideology is beyond the ability of the agricultural sector.

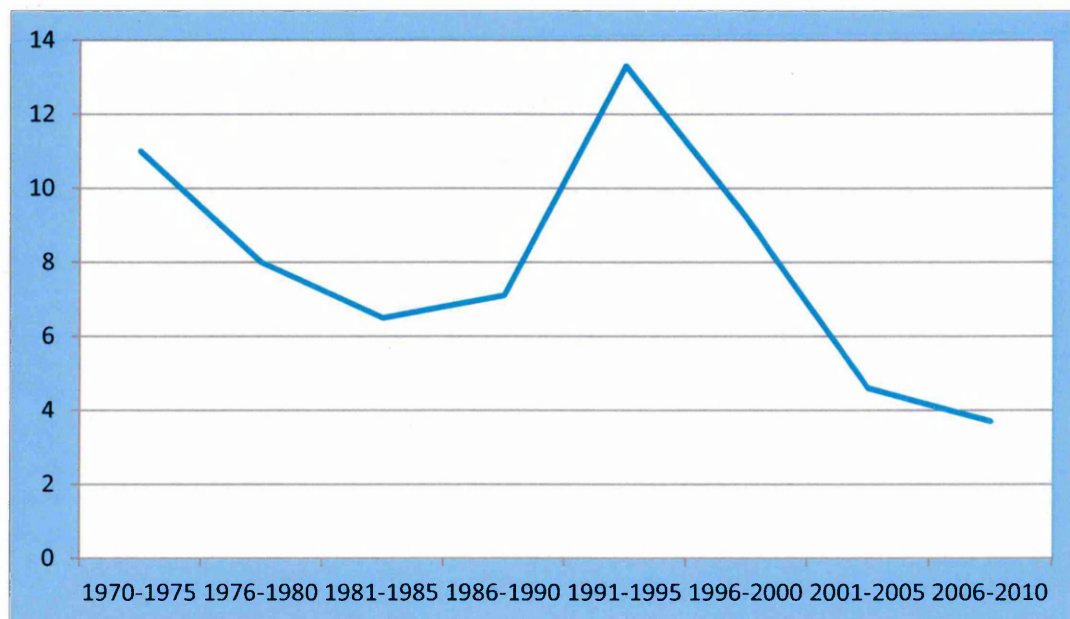
#### **2.2.7.2. Contribution of Agriculture to the National Economy**

According to the figures presented in the previous section, 2.1.2, in spite of the difficulties that the fall of oil revenues and the UN sanctions created in the Libyan economy in the 1980s and 1990s, all non-oil sectors have demonstrated better performance than in the era of booming oil revenues. Despite the growth of the non-oil sectors, oil is still the dominant sector in Libya's economy. On the other hand, the non-oil sectors' contribution to GDP was largely affected by fluctuations in oil revenues. Despite the growth in agricultural GDP, NEPAD and FAO (2006) both described Libya's agricultural reform policies as very traditional because the sector's productivity did not exceed the levels required by local markets. Moreover, many agricultural commodities are mostly imported. Also, Alseah (2004) argued that the sector was unable to fund itself, as the saving rate was lower than the funds needed; it essentially

depends on the oil revenues, which provided about 93.1% of the total funding in the agriculture sector.

The agriculture sector exhibited fluctuating growth rates in the period (1970-2010) (see chart 2.33), whereas performance was better in the period from the late 1970s to the early 1990s (Alrainy, 2001). As is evident from Charts (2.33) and (2.34), agriculture's contribution to GDP has increased since 1980, when the oil revenues started to decline. Bruce (2008) observed that since the mid of the 1980s, Libya has witnessed a gradual increase in agricultural growth. Although the agricultural contribution to non-oil GDP was higher than its contribution to GDP including the oil sector, it was still lower than the expected levels based on the heavy investment in the agricultural sector.

**Chart (2.33) Growth trend of agricultural GDP in Libya (%):** (According to current income factor cost):



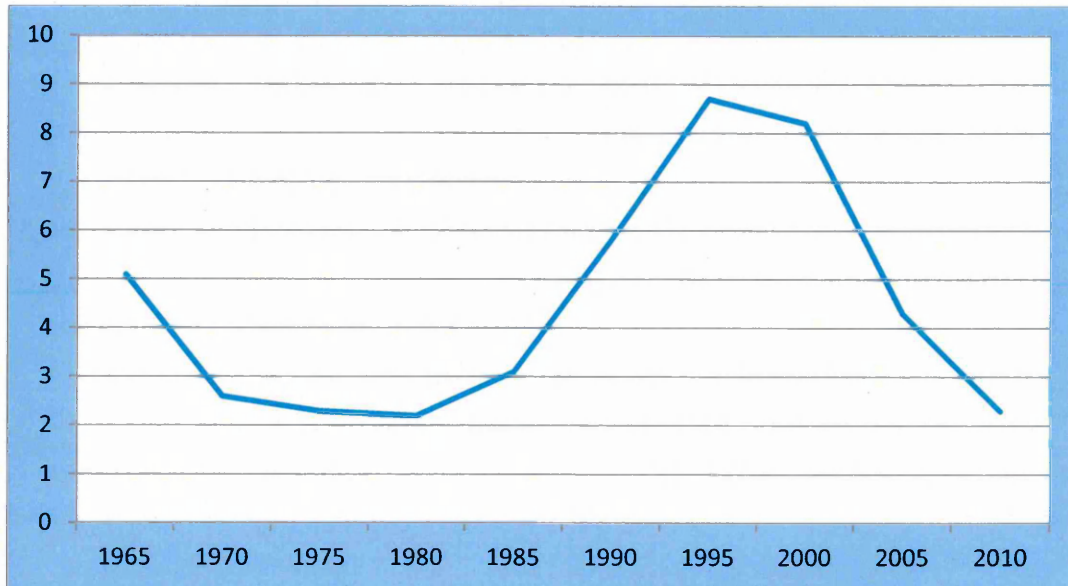
Source: GCP 2001, GAI, 2010

Agriculture's contribution to GDP started to decline in the late 1990s, when the oil revenues started to increase (Charts 2.34 and 2.35). Since 2001, oil revenues have dramatically increased, according to OPEC (2001, 2009). Libya's petroleum exports were highest, at around \$21 billion, in 1980; however, revenues had more than doubled by 2008, reaching around \$56 billion.

Furthermore, government expenditure was drastically affected by the flow of oil revenues and also by the UN sanctions imposed on Libya in 1992 (see Charts 2.34 and 2.35). As the government expenditure increased when the oil revenues increased and

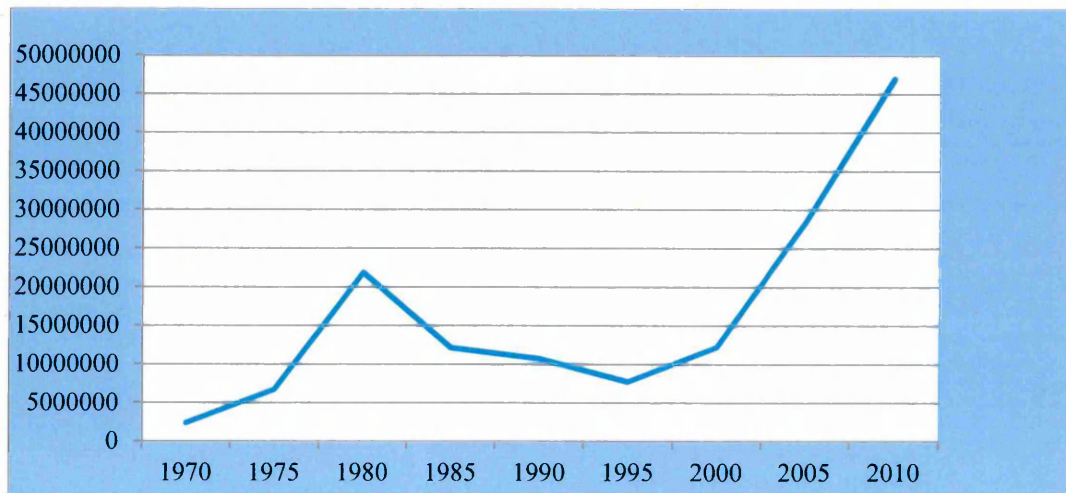
decreased when the oil revenues decreased, there seems to be a positive correlation between government spending and oil revenues. For example, actual expenditure on agriculture increased from 1 million LD in 1962 to 490 million LD in 1980, whilst oil GDP increased from 38 million LD in 1962 to 6.5 billion in 1980; then expenditure decreased to a minimum of 5.9 million LD in 1995, increasing again to reach 141 million in 2000. Additionally, oil GDP decreased sharply to about 3 billion in 1995, and then increased to reach 6.6 billion in 2000 (GCP 2001).

**Chart (2.34) Trend of agriculture's contribution to GDP (%) in Libya:**



Sources: GCP 2001, GAI 2010.

**Chart (2.35) Annual values of Libya's oil exports (by millions USA\$):**



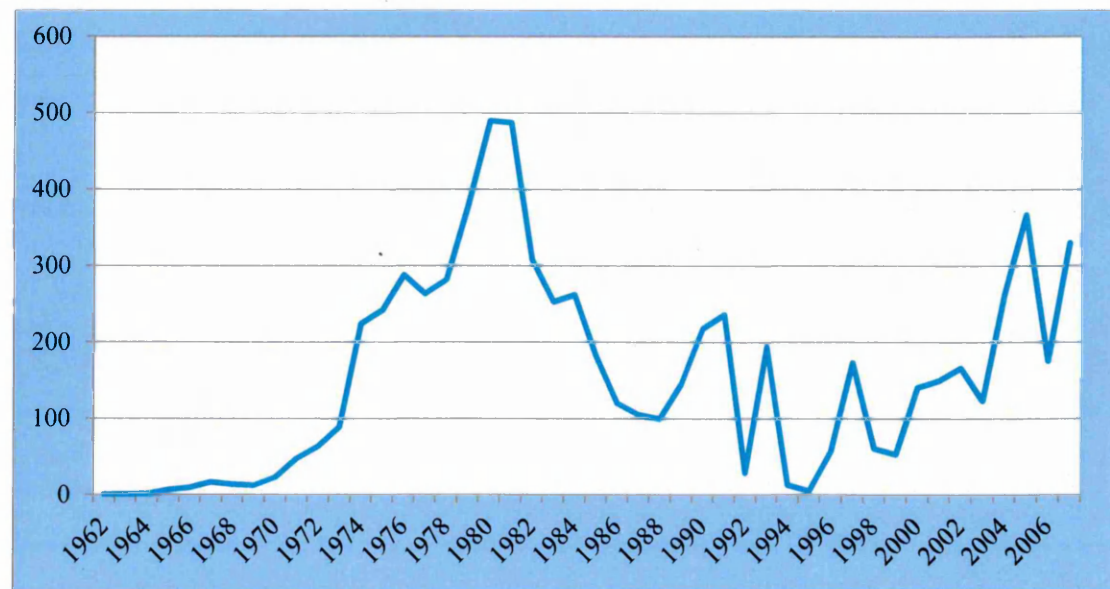
Source: OPEC several reports

By the new millennium, when the oil revenues had started to increase again, the government endeavoured to accord the same priority as previously to agriculture

development programs. This might have been driven by the dramatic increase in oil revenues. Expenditure has increased rapidly since 2001 (see Chart 2.36). In contrast, the agricultural sector's contribution to GDP declined from 8.2% in 2000 to just 1.9% in 2008 (see Chart 2.34), reflecting a decrease in agricultural GDP over the first ten years of the new millennium.

Shaloof et al. (2010) examined agricultural investment efficiency through applying Investment Rate and Return on Investment measures; the results identified a lack efficiency of investment in the agricultural sector for the period (1970-1982), whereas after 1983, the results highlighted that investment was very efficient. However, use of the Investment Multiplier and Endemism Coefficient measures demonstrated a lack of efficiency in investment in the agricultural sector for the period (1970-2007). However, Alsaeh (2004) concluded that the Agricultural Investment Rate for the period (1985-2002) was (0.026) on average, which is a very insignificant figure compared to the income obtained.

**Chart (2.36) Trend in government expenditure on the agricultural sector:** (by million LD):



Sources: GCP 2001, GAI 2010.

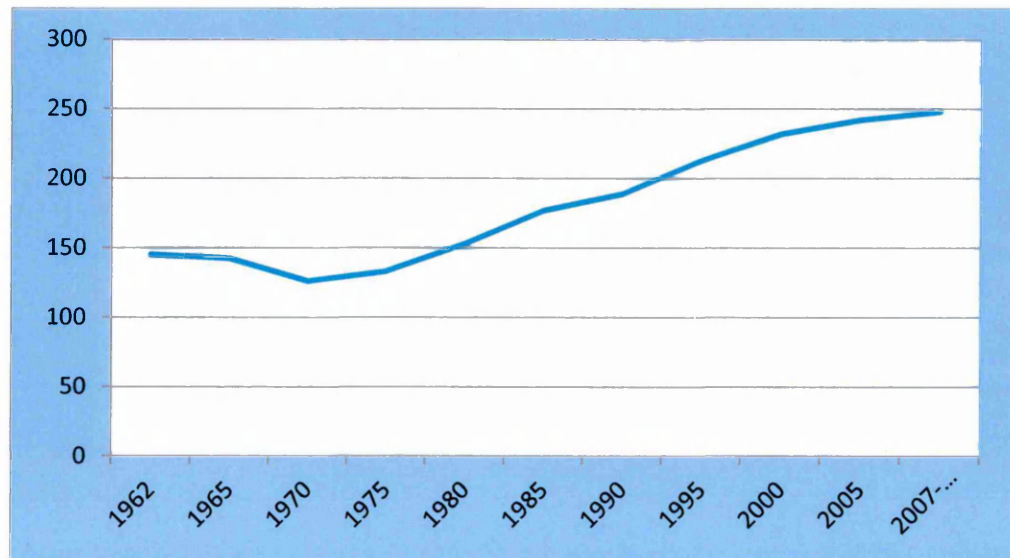
The figures presented in Charts (2.34, 2.35, 2.36) show no evidence supporting the view that the rise in government expenditure and investment in the sector will necessarily lead to an increase in agricultural GDP or improve the sector's performance. For example, in the mid- 1970s, the government investment and expenditure increased rapidly: from 88.9 million LD in 1973 to 379.7 million LD in 1979. In contrast, agricultural GDP

growth fell from 2.7% in 1973 to 1.8% in 1979. Also, in 1995, government expenditure dropped to a low of just 5.6 million LD. However, GDP growth in that year was 8.7%. In general significant amounts are spent by the government on the agriculture sector. It spent about 10 billion LD in the period (1970-2007), from a total of about 250 billion in oil revenues (Shalloof et al., 2010).

### 2.2.7.3. Contribution to the Workforce

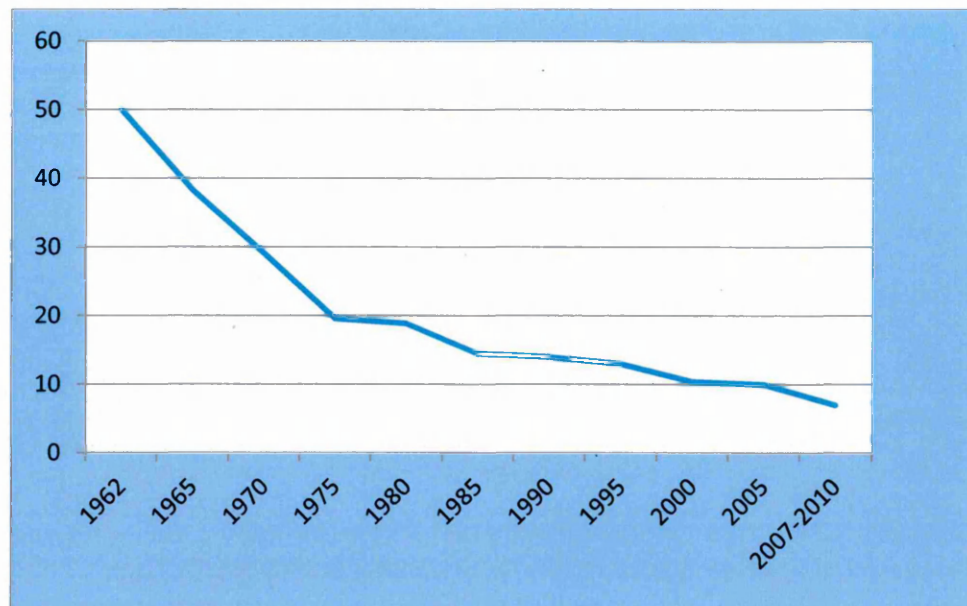
Before oil discovery, more than 80% of the Libyan population, which was less than 2 million, were concentrated in the rural areas, and engaged in different agricultural activities. After the discovery of oil, huge immigration occurred from rural areas to urban areas, where high wages and less exhausting jobs were available to Libya's active population (Allan, 1983). This brought a decline in the number of agricultural workers in the first decade after oil discovery in the 1960s (see Chart 2.37). However, due to the incentives given to farmers by the government, the number of agricultural workers started to increase from the 1970s. However, despite the gradual increase in the total number of workers in agriculture, the percentage of agricultural workers in the total workforce has decreased (see Chart 2.38).

**Chart (2.37) Annual agricultural workforce totals (Libyan and non-Libyan:** (By thousands)



Sources: GAI, 2000, 2010

**Chart (2.38) Percentage of agricultural workers in relation to total workforce:**



Sources: GAI, 2000, 2010

According to Abidare and Lytimi (2005), the structure of employment revealed that the agricultural sector employed the lowest percentage of the total workforce. While in the period (1970-2004) the average of employment in the public administration sector was 16%, health services 12%, education 27%, and manufacturing industry 8%, the agriculture sector only about 5.3%, whereas in 1958 the agriculture sector had employed about 70% of the total labour force (Allan et al., 1973). In 2008, the fisheries sector employed about 14000 workers, which accounted for about 1% of the total labour force (AOAD 2010). Despite the rise in the total number of agriculture labourers from about 145 thousand in 1962 to about 248 thousand in 2008, the average annual growth in the labour force from 1962 to 2008 did not exceed 2.5% (ADAO, 2010).

Like many other oil producing countries with small populations, Libya has attracted a significant number of workers from other countries. Since 1964, the number of foreign workers has gradually increased. NEPAD and FAO (2006) observed that although about 65% of foreign workers were engaged in the construction sector in 2004, agriculture came second with about 15%. In the fishery sector, foreign workers have played an important role, accounting for about 75% of the total number of workers in the sector (Libyan Ministry of Agriculture, 2008). These workers are mostly from Egypt, Bangladesh, China, Philippines and Tunisia. The increased demand for foreign workers reflects the ever-increasing demand for agricultural workers (ADB and OECD, 2009).

Lytimi (2002) identified issues related to the agricultural workforce that have negatively affected the sector's productivity. These include the lack of skilled workers in agriculture, which in turn led to a decline in the productivity of agricultural units, increased dependence on foreign workers, which might lead to production fluctuation due to the instability of the foreign labour, and changes in government laws and regulations that determine their activities and duration, as well as lack of human resource management and the increase in job opportunities in other economic sectors which has accompanied the discovery of oil. This has made the agriculture sector an unattractive form of work for many Libyan job seekers.

### **2.3. Conclusion**

The agriculture sector in Libya has undergone various developmental stages that have brought about many economic and political changes. During the 1960s, the government concentrated more on the service and construction sectors, which developed significantly after the oil discovery, and the attention towards agriculture consequently decreased; but the situation has changed since the early 1970s, when the agriculture sector started to receive significant attention from the Qaddafi government. Despite the fact that Libya's agricultural sector was always a main priority for the government during the period after the adoption of socialism in the mid of 1970s, its growth rate still does not reflect the level of government investment and expenditure, and its contribution to the economy is still lower than that of other sectors. On the whole, the government's endeavours to develop agriculture failed to achieve the primary targets of self-sufficiency and economic diversification.

The heavy dependence on oil revenues has negatively affected the development of the agriculture sector. One of these negative effects is that the funds have not realized the expected returns, as the continual flow of oil revenues has allowed the government to fund the sector without paying due attention to the economic efficiency of most of the agricultural projects. The money surplus in the national budget, which was generated also by the continual flow of oil revenues, has also allowed the government to easily access the international market, which has made it much easier for the country to import food than to produce it. This has contradicted the political ideology of self-sufficiency that formulated the agriculture policies presented in Qaddafi's *Green Book*.

The availability of high revenues from oil allowed the government to persist with this ideology as well as other related political ideologies regardless of their validity or efficiency. Whilst the economic system is fundamentally based on socialist theories and a planned economy, with the public sector taking precedence over the private sector, there is evidence that Qaddafi's beliefs strongly affected the stability of the economic system and the government institutions. The increase in oil revenues led to an increase in government spending on the agriculture sector, without any monitoring of the productivity and efficiency of a sector hampered by widespread corruption and weak control by the public sector.

The review of the literature identified the lack of effective monitoring and the spread of corruption among the ruling elite as key issues. These two factors have resulted in the public sector playing an increasingly large role in the economy, the key driver being the personal interests of the ruling elite and their supporters. This in turn has led to increasing mismanagement of agricultural resources by key decision-makers at the expense of efficiency. Thus the move towards more private sector involvement, promoted by Qaddafi, has in practice not happened because it contradicted the particular interests of those key decision-makers in the public sector.

In addition, the review of literature identified a number of secondary problems such as the lack of sound information systems, lack of a clear government vision of the precise direction of agricultural development, poor infrastructure and on-going lack of agricultural skills among many of those involved in agricultural production.

Based on the preceding argument in the literature review sections, the researcher developed a conceptual framework that identified the key issues of the agricultural development process in Libya, bearing in mind that ecological factors have not been included in this framework. The lack of arable land, the unfavourable climatic conditions and scarcity of water have hindered the development of the agriculture sector, primarily in cultivation and animal husbandry, while wild fishery and fish farming are less affected by these limitations. However, the literature review in section (2.3.2) demonstrated that there are similar ecological difficulties facing all MNE countries. The review of agricultural performance across all MNE countries exhibited that Libya's performance is much poorer than that of the other countries in the region.

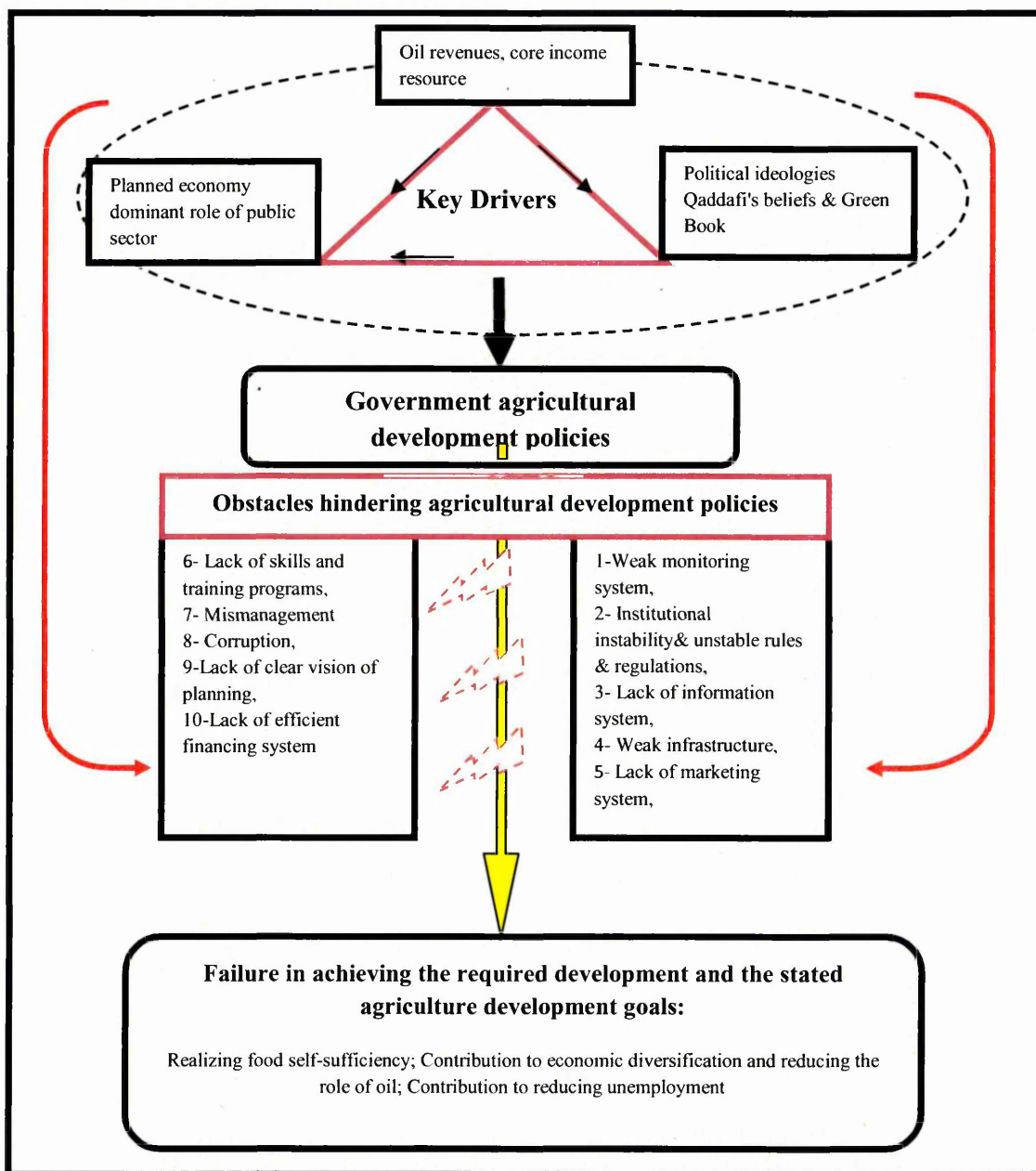
The conceptual framework below (Figure 2.6) presents the key drivers and impediments to Libya's agriculture development. It highlights the key developmental issues in Libya that were extracted from the literature review. Before clarifying the conceptual framework, it is critical to point out that the researcher focuses in the framework on the period of planned economy, starting with the implications of the adoption of socialism (in its different stages), based on a critical examination of the three propositions the researcher postulated in Chapter One (the introduction):

- The availability of oil as a non-renewable source of revenue and the ways of exploiting it,
- The adoption a large number of economic planning criteria, the main one being public sector domination of the state's establishment, and
- The political ideologies that represent the concepts and beliefs of Qaddafi.

As is evident from the literature review, the researcher understands that Libya is a state that is a unique combination of features, some of which are similar while others are different from those of many countries of the world. The main features are that Libya is a rich oil country, a socialist state to a great extent, and it has been ruled for many years by a non-classical regime called Jamahiriya, headed by a leader with uncommon political ideologies.

Taking into account these parameters, the researcher developed her conceptual framework; factors deriving from issues directly or indirectly affect the development process. The literature review identified the key drivers of development and growth of the agriculture sector in Libya, which is one of the economic sectors targeted by the development process. The agriculture sector depends heavily on oil revenues, which are the prime funding resource for the agricultural sector. The agricultural sector cannot support itself in economic terms. The oil funds operations and the development plans. Oil revenues provide around 90% of the funding for the agriculture sector (2.2.3 and 2.3.7.2). On the other hand, when the agriculture sector failed to meet the country's food needs, oil revenues facilitated the process of obtaining imported food, with more than 75-80% of food necessities now imported from abroad and funded by the oil revenues. (2.3.7.1). Here again oil is playing a critical role in the coverage of the agriculture sector's shortcomings in terms of food provision.

**Figure (2.6) Conceptual framework of agricultural development:**



Note: This shape reflects the barriers that impede the government's policies from achieving the stated development targets.

The agriculture sector, like any other non-oil economic sector, has been affected by the dominant role of the public sector. Actually, the implementation of a planned economy since the 1970s has given the public sector institutions priority in taking over and administering strategic agricultural enterprises. However, despite the fact that there are a considerable number of small-scale projects owned by Libyan citizens, these are not productive, like other public administered projects which are supported heavily by the government.

Under the public sector's ownership and management of large scale and strategic agricultural projects it seems that little attention has been paid to their profitability and efficiency (see sections 2.2.1.2 and 2.3.3).

The arguments in the literature review considered the concept of food self-efficiency as the main element steering government policies towards the development of agriculture. Qaddafi stated in his *Green Book* that the freedom of a nation is strongly tied to food self-sufficiency. Consequently, the government endeavoured to realize agricultural development. Though this ideology seems impressive, the fact, as stated by the FAO, is that Libya cannot be fully self-sufficient. This ideology is thus rendered unattainable and creates a drain on national resources. Moreover, the corruption that exists in management of funding for the development of the sector has made the situation even more problematic (see sections 2.3.3 and 2.3.7).

Qaddafi's influence on the agriculture sector is not limited to the adoption of self-sufficiency ideologies; it extends to the means of managing the sector, as detailed in his *Green Book*, in the third Universal Theory and the so-called Brother Leader Directions. His written arguments and verbalized thoughts have been implemented directly and indirectly in the government policies toward the sector's development. An example of his thoughts is that the private sector is an exploiter of the people's needs and that the land belongs to no-one. Such thoughts were translated into government legislation and procedures. They transferred most of the power to the public sector, and despite the latest reforms in the economy in this regard, the public sector still has a great influence (2.3.3 and 2.3.4).

The literature review displayed a complicated relationship among these three drivers, but the existence of oil with its huge revenues is considered the critical element, not only in funding the agriculture sector but also in subsidizing the invalid political ideologies, as well as financing the public sector under the ultimately unsuccessful planning system. As a result, the agricultural sector experienced low productivity, and low efficiency levels; the public sector failed to effectively manage the huge expenditures invested in the agriculture sector due to the problems that characterized the public sector, including mismanagement, lack of a sufficient information system, and corruption.

The framework also defines the problems and obstacles hindering agricultural development. The literature review illustrates that the agriculture sector faced problems similar to those that most of the economic sectors encountered, in addition to weak agricultural infrastructure. These problems hindered the development policies from achieving the stated targets. This is evident from the low agricultural GDP, the poor contribution to the national economy and the lack of growth in the agricultural workforce; more important is that Libya's food imports continued to increase (see section 2.3.7).

# Chapter Three: Research Methodology

## 3.0. Introduction

The research methodology illustrates how the study was conducted and includes a rationale and justification for the methods chosen. Silverman (2001) stated that methodologies are never true or false, but they are only more or less useful. Thus some methodologies are more appropriate than others for meeting the demands of a particular piece of research. This chapter clarifies the methodology employed in this research, and presents the data collection process undertaken. The generation of data and information related to the research topic was highlighted and rationalized to test the conceptual framework and to answer the research question, and to respond to the associated aims and objectives of the study, which were stated in Chapter One. The chapter also discusses the methods used in the study, justifies the chosen methods and places them in the context of research methodologies utilized in the socio-economic sciences.

To understand the choice of research methods it is necessary to understand how the Libyan context of research influenced the choice of methodology. On the basis of the literature review, the researcher developed a conceptual framework that identified the key drivers of the development process of the agriculture sector in Libya. These drivers include the oil revenues as the fundamental source of funding, and the political ideologies, which were based on the *Green Book* ideologies and the socialist thoughts reflected in the Jamahiriya system and the planned economic system (see section 2.3.9). The conceptual framework presented also some of the barriers that have hindered the development of the agriculture sector in Libya towards achieving its targets. These barriers include: mismanagement, weak information systems, weak infrastructure, and lack of the required skills, among others that emerged from the literature. These factors have hindered the agricultural sector in realizing its developmental objectives, which were as follows; self-sufficiency, increasing the standard of agriculture with respect to economic diversification from oil, and contributing to reduction of the unemployment rates.

Employing a deductive approach the researcher intended to examine the conceptual framework using the marine fish farming as a case study to test, adjust or modify the framework. It might be important to explain how the research question and the propositions presented in the conceptual framework were arrived at. In fact, the question addressed by the current research study underwent several transitions before taking on its final form of: Why has the marine fish farming sector failed?

Such changes were not haphazard, and they have not taken place at random, rather they gradually emerged as the researcher delved deeper into the research area. These facts forced the researcher to take different paths and to change the direction of the research in order for it to evolve in its final form.

It is worth pointing out that when the researcher started studying for her PhD in 2008, the expectation was that the study would be investigating investment decisions within a successful marine aquaculture sector. This topic was actually suggested by the Faculty of Economic Agriculture where the researcher worked as a lecturer, as there were a belief that there was a lack of research in what government reports described as a successful sector (see section 3.2.). Using her agricultural economist background the researcher aimed to conduct an economic study applying feasibility assessment methods to current fish enterprises and making use of economic and financial indicators such as profitability, production efficiency and progress assessment. However, when she started to conduct a general pilot survey on the fish farming sector, she faced a new reality, facts that contradicted her convictions. For instance, the researcher believed that her focus was a study population that consisted of hundreds of farms, as some government reports indicated, but when she visited the Marine Biology Research Centre in Tripoli in 2008 and carried out some initial conversations with technicians, she was surprised to discover that the real number of marine farms was far fewer than that.

This suggested that the research problem was more complex than originally thought and that the problem was not confined to technical issues. So she decided to revisit previous studies and to review their background in accordance with the Libyan economy in general and the agricultural sector in particular, with reference to countries with similar characteristics to Libya, in an attempt to understand the root cause of the deterioration of fish farming to the extent that its contribution to the national agricultural sector production has become insignificant despite the huge natural potential that exists for

marine aquaculture. The characteristics of the area were similar to those in neighbouring countries that lie along a coastline that extends for 1900 kilometres, especially the presence of suitable water and topographic environment in diverse parts of the coast, as is evident from field studies conducted by the FAO.

From here, the question started to take shape; the researcher endeavoured to investigate the underlying reasons for the failure of the fish farms and their continual decline in numbers, which was responsible for that failure. From reviewing the literature the researcher perceived that financial liquidity, availability of a skilled workforce and operational requirements, along with other direct factors, were not the prime reasons for this failure, so she started to probe more deeply. When the researcher started to review the literature, she focused mainly on Libya's economic system in the context of socialist and oil rich countries in an attempt to extract the roots of the problem under investigation.

What caught her attention while assessing the general economic situation of the country was the interaction among three specific factors and their effect on economic development in Libya: (1) Libya was rich in oil, (2) it had an economic system that could be described as planned, and (3) its political system was similar to those of the socialist communist countries, but it differed in that it relied on the ideologies of the head of the state at the time when the study was conducted. These three issues have directly and indirectly affected government policies towards reviving the economy in general and agriculture in particular. Moreover, the review of literature related to the non-oil economy highlighted the presence of numerous problems within the Libyan economy. These were factors that obstructed the other economic sectors, including agriculture, from realizing their objective of attaining the required level of development and growth.

For in-depth discussion of these issues the researcher tended to interview participants from academia with expertise in marine aquaculture, who it was expected would discuss such issues deeply, based on their experience and knowledge of the research topic. Due to the dictatorial political culture in Libya, their expression through publications in the field was expected to have been constrained. Face to face interview would give them the opportunity to say what they could not write in published works. On the other hand, to perceive the other side of the picture on agriculture development, it was important to

look from government side to triangulate the debate about agriculture policies, which would permit a more impartial and objective discussion.

The topic of study about fish farming, was originally suggested by the Agriculture Economy Department<sup>29</sup> as a topic that had not been thoroughly investigated. From the literature review, (see for example Alkhomsy, 2008; AODA 2010) it was concluded that marine fish farms were the least successful part of the agricultural economy and the least affected by ecological factors. While other researchers have considered climatic and topographic difficulties, such as the scarcity of water and the lack of agricultural land, as being factors that weaken the performance of the agricultural sector (Larbah 1996), these factors were not considered fundamental obstacles in the case of fisheries and fish farming, even though they affect cultivation and animal husbandry. Consequently, this case study was appropriate to a large extent since it was possible to give the non-natural factors more weight in considering the agricultural growth formula in Libya. Thus, it became possible to address the problems more objectively. From the discussion of the literature review, the researcher constructed a conceptual framework for reviewing some of the research propositions (see section 1.2) which would be examined through the initial field search.

It is important to mention that the researcher should not ignore factors that affect the running of the fish farms and their operations on the ground, such as the spread of disease, technical problems related to tanks or cage design. Although under researched at this time, it is evident from research both outside Libya and in other forms of fish farming that these are important aspects of the research.

The conceptual framework was developed from the key themes identified within the literature review and this led to the development of the propositions. Despite the fact that the literature arguments raised many issues regarding the failure to achieve the development targets, the researcher, based on the strongest points emerging from the literature, presumed that three core propositions play a primary role in driving the development process in Libya. Therefore, the researcher built up a conceptual framework which narrowed the focus down from general economic development to agricultural development. The results that emerged from the examination of this

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<sup>29</sup> At University of Omer Al-Mokhtar/ Faculty of Agriculture

framework would help to answer the research question. It would be examined by applying the methodological techniques which are explained in this chapter. The researcher critically and analytically viewed the issues that arose from the data analysis collected from the participants' perspectives to find out the truth about the factors that contributed to the failure in achieving the development targets.

The methodology presented in this chapter enabled the researcher to achieve the aim of this study and to answer the research question. Thus, the research was expected to make a contribution to knowledge through highlighting the possible reasons behind the failure of agricultural development in a developing, socialist and oil rich country.

### **3. 1. Research Philosophy**

The purpose of this section is to discuss a range of theoretical perspectives which are potentially appropriate to the research project undertaking. The theoretical perspective describes the philosophical approach underlying the information obtained from methodology (Crotty, 1998). In other words, it is the way of looking at a phenomenon and making sense of it. All research studies are primarily based on some fundamental suppositions about what institutes 'valid' research and on selecting the appropriate research methodology. It was thus significant to know what these propositions are. For research purposes the most pertinent philosophical assumptions are those which relate to the underlying epistemology which guides the research.

#### **3.1.1. Epistemology**

Epistemology refers to the assumptions about knowledge and how they can be obtained (Hirschheim, 1992). Browaeys (2004, p 2) noted that the philosophic dictionary defined epistemology as the "study of the scientific knowledge from a critical point of view" Cuvillier (1966). In other words, epistemology was "the critical study of the principles, hypotheses and results of the sciences to determine their value". DeRose (2002) argued that epistemology was the theory of knowledge.

Chia (2002) observed that epistemology defined the means of knowing and understanding the world through three paradigms: positivism, interpretivism and

realism. On the other hand, Guba and Lincoln (1994) proposed four paradigms for epistemology: positivism, post-positivism, critical theory, and constructivism whereas Orlikowski and Baroudi (1991) postulated three categories of epistemology: positivist, interpretive and critical. This three-fold classification was the one that was adopted here. These research paradigms influence the approach of the research and help to build an understanding of sociological knowledge. Nonetheless, though these three research epistemologies are *philosophically* discrete, in practising social research, the distinctions are not always distinct (Lee 1989). There has been substantial disagreement regarding these research "paradigms", as to whether the underlying epistemologies were inevitably opposed or could all be accommodated within a particular study.

#### **3.1.1.1 Positivism**

Positivism is a philosophy that is based on figures and numbers (Anderson, 2004). The positivists believe that what actually occurs in organisations can only be accounted for in terms of categorization and statistically legal techniques that assess the behaviour of people and systems, and that language truly represents reality (Hatch and Cunliffe, 2006). This supports the view that the natural science methodologies can be utilized in the study of social reality. Positivism relies heavily on the values of reason, truth and validity. It focuses on facts collected through direct observation and experience and their empirical measurement based on quantitative methods of surveys, experiments and statistical analysis (Saunders, Lewis and Thornhill 2009).

#### **3.1.1.2 Interpretive**

Interpretivism addresses how people construct and sustain their social worlds, via detailed observations of people's behaviour in natural settings (Galliers, 1992). Interpretivists view multiple realities (Denzin and Lincoln, 2003). As all knowledge is relative to the knower, the interpretivists' aim is to work with others, while they make sense of, infer meaning, and construct their realities so that one can comprehend their viewpoints and interpret their experiences within the setting of the researcher's academic experience (Hatch and Cunliffe, 2006).

Rubin and Babbie (2001, p 34) stated that "interpretive researchers do not focus on isolating and objectively measuring caused or in developing generalizations. Instead,

they attempt to gain an empathic understanding of how people feel inside, seeking to interpret individuals' everyday experience, deeper meanings and feelings, and idiosyncratic reasons for their behaviours". The interpretive paradigm is tested by making reference to human practices within society. If the individual's interaction produces the expected results, then the theory is validated and vice versa.

### **3.1.1.3 Critical**

Critical research assumes that social reality is constrained by social, cultural, economic and political circumstances (Myers, 1997). Although people can consciously act to change their circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political dominations.

The researcher thought that the critical paradigm was more appropriate for the case of this study. Considering all measures, this research could not be "positivism" oriented since the philosophy was not based on numbers or figures, and the analysis did not involve any statistics. It was not "interpretivism" based since it did not focus on objectively measuring causes or on developing generalizations. Although the researcher built her knowledge in accordance with other human beings' perceptions, and considered that the truth came from what others (including farmers, governors, experts and academics) said, and to a large extent based the results upon their opinions, the researcher strongly believes that there were political and economic constraints that affected the ability of those related to the field of marine fish farming, to produce the required development.

Carspecken and Apple (1992) argued that the term 'critical' means that researchers must be unhappy with what they find, and that they must seek to change it, whereas critical researchers ask a different question; they are 'politically minded' and they endeavour to disclose the political and economic constraints related to inequality and domination relations. This research also sought to identify the political and the economic constraints that created obstacles that hindered the development of the agriculture sector and brought about the failure of marine fish farming in Libya. The researcher was critical of the issues behind the failure to realize the targeted development. Myers and Klein (2011) argued that the prime task of critical research is to create a social critique whereby the restrictions and the dimensions of the investigated conditions are

highlighted; the current research focused on the contrasts and contradictions within the Libyan context.

Criticizing the state of agricultural development entailed presenting the reality about constraints, contrasts and contradictions that have hindered the development process and caused failure. The researcher believed that the truth was the balanced knowledge between what was actually on the ground, socially, economically and politically, that could be touched and seen of a particular issue or event, on the one hand, and what was reflected through the critical lens as employed by the researcher to examine and scrutinize those “facts”, on the other hand. The objective was to come up with visions and ideas about the reality of the issue or the event. The viewer was the agreed scientific approach upon which the research methodology was based.

### **3.1.2 Types of Research**

According to the methods of reasoning, research can be classified into deductive and inductive research. According to the research process for collecting and analysing data, research can be classified into qualitative and quantitative research. According to the purpose beyond conducting the study, research studies can be classified as exploratory, descriptive, analytical or predictive (Gill and Johnson, 2002). To set the scene for explaining the choice of research method, the researcher restated the research question and the aim, which were previously stated in the introductory Chapter.

#### **3.1.2.1 The Research Process**

This research was qualitative. Creswell (1994) stated that qualitative researchers focus primarily on the research process, rather than the outcomes. Qualitative research is generally not concerned with numbers, but with gathering rich data from a small number of people or cases (Veal, 2006). Qualitative research is more often concerned with explaining the *why* rather than the *what, when and where*. Silverman (2006) argued that the decision to choose a qualitative or quantitative research depends on what the researcher is trying to find out. It provides an opportunity to explore new ideas that relate to the research question. It also answers questions of *how* and *why*, obtained by a quantitative approach. This research involved the use of qualitative data, from interviews, structured interviews and documents to understand and explain politically,

socially, and economically the phenomena of the failure in developing the marine fish farming sector. In this study, the research attempted to answer the question of: why marine aquaculture has failed in Libya.

Qualitative research attempts to find out how people perceive their lives. Different people have different perspectives. In this research, it was expected that the key players would present their perspectives on the issues under discussion with more details, so the researcher chose the qualitative approach to provide rich information to explain the key drivers behind the failure of marine fish farming in Libya, not just in the context of agricultural development but also in the wider context of economic development in Libya, taking into account the political and economic constraints. Quantitative data about marine fish farming in Libya did not actually exist, so the researcher could not conduct a scientific study due to the lack of quantitative data. These factors drove and encouraged the researcher to employ qualitative rather than quantitative data as this approach was expected to provide rich and interesting debate about the topic.

#### **3.1.2.2 The Reasoning behind the Research**

Generally, in a research study, one would refer to the two broad methods of reasoning: the deductive and inductive approaches. Deductive research involves extracting information in order to move logically from the general to the specific. The research starts with general statements and moves through the supporting details until a conclusion is reached. The conclusion follows on logically from the premises (Neuman, 1994). On the other hand, inductive research is based on inductive reasoning which moves from the specific to the general. It commences with definite observations and measures, detecting certain patterns and formulating tentative hypotheses for exploration. It ultimately develops some general conclusions or formulations (Hyde, 2000).

This study adopted a deductive research perspective; hence, it started with a general conceptual framework that introduced the issues facing and hindering economic development. The research then shed more light on the specific topics related to agricultural development. The proposed framework was then assessed in order to focus on marine fish farming as one of the badly affected agricultural sectors, and one of the weakest sectors in the Libyan economy. The way in which the reasoning flowed and the

manner of addressing the topic in such a context encouraged the researcher to adopt a deductive rather than an inductive approach.

### **3.1.2.3 The Purpose Beyond Conducting the Research**

Research has been classified as exploratory, descriptive, predictive and analytical (Neuman 1994; Collis and Hussey; 2003). Descriptive research attempts to provide a narrative profile of the specific details of a situation; hence, stimulating new explanations emerge within a specific topic area. It describes phenomena as they are. The gathered data are often quantitative, and the statistical techniques are frequently applied to sum up the information (Blumberg et al., 2005).

The aim of predictive research is to over-generalize from the data analysis by foreseeing definite phenomena on the basis of the hypothesized, general relationships. Therefore, the solution to a problem in a specific study would be applied to tackle similar problems elsewhere, if the predictive research could yield a valid, vigorous solution based on vivid comprehension of the pertinent causes (Collis and Hussey, 2003). Jankowicz (2005) argued that exploratory research investigates an issue in order to formulate a mental image of what occurs, to generate ideas and to develop theories. This type of research aims to examine patterns, ideas or propositions rather than to test or to confirm propositions. In exploratory research, the emphasis is on acquiring insights and familiarity with the subject area for more rigorous investigation at a later stage.

In analytical research, Collis and Hussey (2003) and Zikmund (2003) argued that the researcher goes beyond merely describing the characteristics, to analysing and explaining, accounting for the **why** or **how** the phenomenon being studied is happening. Analytical research aims to understand phenomena by discovering and measuring causal relations among them. Actually, analytical research has provided strong tools for critical paradigms in that it does not just account for the why or how things happen but it also provides a critical view on the emergence of these reasons and drivers.

In analytical research, the researcher also has to make use of the facts or information available, and to make a critical evaluation of the issues under discussion. This study was intended to be analytical rather than exploratory or descriptive, whereby the researcher aimed to investigate the factors and the drivers behind the failure of marine

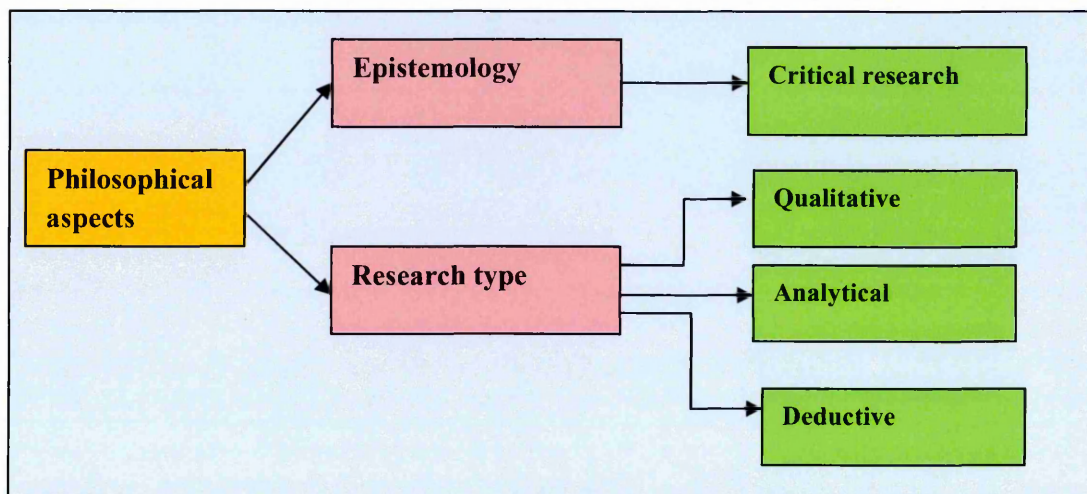
fish farming in Libya, through analysing the surrounding political and economic issues related to the activity in the context of Libya, and thus to determine the reasons behind its failure.

### 3.1.3 Conclusion on Research Philosophy

Although it has been argued that qualitative research focuses on the interpretation of a phenomenon in its natural setting to make sense of the meanings people bring to these settings, qualitative research can be positivist, interpretive, or critical, depending upon the underlying philosophical assumptions of the researcher. Qualitative research also can be predictive, exploratory or explanatory (analytical) (Denzin and Lincoln, 1994; Cormack, 1991).

Despite the fact that quantitative methods lend themselves to deductive research, and qualitative methods lend themselves to inductive research, neither of these is exclusive (Hyde 2000). Many qualitative studies have operated in a deductive mode, beginning with a theory.

**Figure (3.1) Philosophical paradigm for the research process:**



Many qualitative studies operate in a deductive mode, beginning with a theory or a conceptual framework, collecting and examining data systematically to demonstrate whether the theory has been supported; otherwise, it should be rejected or modified. Hyde (2000) argued that the findings of qualitative inquiry remain tentative as long as they are untested. Both qualitative and quantitative researchers practise deduction and

induction in their research, but they do not always recognize these processes formally in their research. He argued that the adoption of formal deductive procedures could represent an important step towards assuring conviction in qualitative research findings.

In conclusion, the researcher discussed the philosophical approaches that were adopted in this research (see Figure 3.1). The researcher thought that these theoretical approaches were compatible, that they did not contradict each other and that their paradigms reflected the theoretical perspectives which were most appropriate to the research project undertaken.

### **3. 2. Personal Positionality**

In the context of this research it is important that the researcher states her positionality. The reasons for this are multiple and include the impact of changes to the regime following the downfall of Qaddafi and due to the differences between the cultural origins of the researcher and her current research environment. Burgess (1984, p 210) stated that "while some researchers become interested in an area of study through reading other people's work, this is only one part of the story, for the biography of the individual researcher has a part to play." Examining the personal history and the responses to the cultural forces of which it was a part in order to discern the reasons behind a research interest, and the means whereby a research has been undertaken, one might highlight something of the researcher's personal positionality and its influence upon the research process.

The researcher is a female Libyan who has lived in the same political and cultural environment where most ordinary Libyans live. On the other hand, she has the chance to achieve a high level of education: she obtained the Bachelor degree in agriculture and a Masters in management and organizations. This background was somehow reflected in the researcher's experiences, beliefs, and values. The researcher's political and cultural background along with her educational history affected her reasoning which in turn influenced the designing of the research, the analysis of the data and thus the discussion and the conclusions. Furthermore, the researcher was a staff member of the agricultural economy department, where she taught for three years. With this educational background and work experience, she felt quite confident that she could contribute

significantly to agricultural development. Each person is assigned a position socially, not only as part of the processes of construction and innovation and possibly of change, but also one experiences reality in ways which differ according to one's ethnicity, class, gender, religion and other crucial components of life experience (Rosen 1998). Recognition of one's positionality might occur through one's choice of research literature within the area in which the research is to be conducted.

The responses to that literature ought also to give an indication of one's ideological positionality in relation to the research area. For example, Karl (2004) argued that the experience of almost all oil-exporting countries to date has exhibited few benefits and too many negative consequences of oil-led development, including growth which was slower than expected, barriers to economic diversification, poor social welfare indicators, and high levels of poverty, inequality, and unemployment. The researcher holds similar views. Her theoretical grounding for this came from her personal life experience in her own country, Libya, where these issues were evident to almost all the people. However, the researcher was an insider researching her own society, investigating an area related to her educational background, as well as an outsider, in the sense that she was not a fish farmer or a government decision maker.

Regarding the field work, the researcher's position was also pertinent. Returning to Libya to conduct the fieldwork, the researcher encountered several dilemmas. Carrying out the fieldwork in Libya posed unique problems, particularly for a female researcher, since Libya is an Arab Muslim country (Sultana, 2007). The literature on qualitative research methods largely focused on democratic regimes rather than authoritarian regimes and in addition the Middle East in general was characterized by being a conservative culture. The experiences of social scientists conducting research studies in the Middle East were especially abundant with discussions on qualitative methods, as researchers must engage themselves with the political authoritarianism and presumably the cultural effects of the religion norms, traditions and gender (Szanton, 2002). These were some of the challenges facing an Arabic Muslim female scholar undertaking field work in Libya as a Muslim Middle Eastern conservative society.

While similar social and political processes might face other researchers working with their research participants, this researcher was acutely aware of her gender, as all the participants were males. When the researcher and the participants share the same sex

and culture, communication is facilitated since both the gender and the culture are brought into clear focus, making more sense of the produced data (Gill and Maclean, 2002). Gender is particularly important within a socio-cultural context where patriarchy and segregation by gender are the norm. It affects the entire range of data collection along with the analysis strategies in the social sciences and in science generally (Harding, 1987 and Nielsen, 1990) while that influence is probably most marked in qualitative research (Fonow and Cook, 1991).

Culture manifests itself most prominently in issues related to gender. Barnett and Cason (1997) argued that gender is one of many variables that could influence field work and, more importantly, it may or may not be advantageous in the Middle East. In a survey on political scientists conducting field research in the Middle East, Clark (2006) concluded that most female researcher respondents found that being a female was helpful when studying issues related specifically to women, and/or that required interviews with women. As many countries in the Middle East are socially segregated on the basis of sex, men are largely barred from women's realms. 38% of the female respondents stated that they confronted difficulties in conducting field work because of their gender and the local gender norms. Only 7%, however, noted that they had less access to male interviewees as a result of being female. Also, most of the respondents in the study stated that gender-related problems were more or less confined to the degree of sexual harassment on the streets or to the extent of conformity to the local gender norms socially. They had less to do with the actual interviews or the field work. Gender issues need to be considered and appropriate methods and processes should be developed since cultural and social norms elicit certain expectations from the researchers and the participants in terms of their gender (Jarviluoma et al., 2003).

Tierney (1998) stated that gender issues are extremely relevant to conducting field research, because the researcher's gender affects his/her ability to gain access to the research settings, determining the way in which the field work is carried out and how the field worker is perceived and treated by those who are being studied. Gender also shapes the manner in which the researcher collects and analyses data, from the strategies and tactics used in field work to the manner in which the field experiences and data are interpreted. It is also important to note that many gender-related challenges for female researchers have been attributed to the age of the woman, her status and the country in which the research was being conducted (Clark, 2006). When the current field research

commenced, the researcher was 35 years old and she was married. Although in most Arab Muslim societies, a woman had more freedom once she married and became older, women have to be careful with respect to mixing with unrelated men (Grullon, 2007 and Ahmed et al., 2010).

Grullon (2007, p 83) stated that "if a female researcher is interested in studying the male public arena (i.e. cafes) she must be prepared to recruit male assistant help, or the female researcher may simply not have access to the relevant information in that area". The researcher tried to minimize the negative effect of being a female through her choice of location, and through undertaking the interviews in the company of her brother and husband. This strategy was more acceptable under the societal mores in which the interviews took place. For cultural and social conservative traditions, it is not easily accepted for a woman to conduct informal and individual face to face interviews with a stranger. A Stranger in this case means people who are not family relatives of the researcher. Although there is significant consideration and respect from the society for academic researchers, such cultural and traditional constraints cannot be neglected because they affect peoples' social lives and reputations. So conducting interviews in the presence of brother or husband can make both parties (interviewer and interviewee) more comfortable and thus can make the interviews more effective.

On the other hand, in a tribal society like that of Libya, family relationships play an important role in most aspects of social life. Such relationships have commonly been utilized to ease access to research participants. Clark (2006) argued that in the researcher's effort to gain the necessary trust for a successful interview, it was most usual to rely on a family member, a friend, a previous interviewee, a local academic, or on a local research assistant to contact the desired interviewee and to secure an appointment. The researcher exploited her relationships through family members and people from the same tribe, in addition to college relationships, to access some key interviewees and to facilitate conducting the interviews. The use of such relationships can increase the efficiency of the interview methods, and also increase the positive responses to the questions asked. If the arrangement is conducted via relatives or colleagues of the interviewees, this would make the interviewees more welcoming to the interviewer, also they would have more trust in her based on the already existing trust in the relatives who facilitated the interviews. It would also help in making the process less formal and more open.

Bachmann, (2010, p 362) observed that "conducting fieldwork in the developing countries was often subject to unforeseen events and changes in the research environment necessitating substantial adaptations on the part of the researcher. The events leading to such changes could vary significantly; for example, natural catastrophes, personal tragedies or institutional rearrangements". Clark (2006) found that the greatest difficulties encountered in undertaking research in Middle Eastern countries were directly or indirectly a result of the authoritarian political climate. They involved difficulties in obtaining interviews with key individuals, the interviewees' unwillingness to speak openly, most commonly due to the political repression and the pervasive "culture of suspicion," as evidenced by the interviewees' mistrust and nervousness in speaking frankly to researchers for fear of political repercussions. In the case of the current research, the problem was the unexpected political change.

The popular revolution against the dictatorial regime has led to huge political changes. This has directly affected the researcher's position, and changed some of the research paths in undertaking this research and affected her manner of discussing the different perspectives related to the topic at hand. As an example, the researcher was not able to investigate issues related to politics for fear of repression by the government if she was to critically expose Qaddafi's politics. She was not allowed to identify any negative aspects concerning these ideologies. However, after the political changes that resulted from the toppling of Qaddafi, the researcher seized the opportunity to raise questions and discuss freely those topics that were banned under the previous regime.

### **3. 3. Research Strategy**

The methodologies were derived from the researcher's assumptions about the nature of existence (ontology). The research ontology led to the research philosophy on the nature of knowledge building (epistemology) (Sharlene, 2010). The research methodology was a strategy, plan, or design linking the theoretical approach and the chosen research methods (Crotty, 1998). In this context, Saunders et al. (2007) observed that there were a number of research strategies which could be employed; these are: experiment, survey, case study, action research, grounded theory, ethnography and archival research; besides, they noted that there was no research strategy that was essentially superior or inferior to any other and that the proper strategy was the one that enabled the researcher

to answer the research questions and to realize the research objectives. However, the case study of the Marine fish farming sector was adopted in this study as a main research methodology to examine the conceptual framework of the drivers and the factors that affected the development of the agriculture sector in Libya.

### **3.3.1 Justification of Case Study Method**

The choice of a specific qualitative research method (such as the case study method) was independent of the underlying philosophical position adopted. According to what was presented in the section on the philosophical aspects of this research, the current study was considered qualitative. Qualitative research allows the subjects being studied to give 'richer' answers to the research question, and it was expected to yield valuable insights, which might have been missed by any other method. However, in the following discussion, the researcher will identify the key elements of the qualitative methods that were employed in this study.

Many social scientists believe that case study is only appropriate for the exploratory phase of an investigation; however, some of the famous case studies have been analytical, such as Alison and Zelikow's (1999) *Essence of decision: Explaining the Cuban missile crisis* and Yin's studies (2009). So adopting the case study method would not contradict the philosophical perspectives of this research. For example, case study research could be positivist (Yin, 2009) (Sarker and Lee, 2000), interpretive or critical (Walsham, 1993, 1995).

Bryar (1999) and Riege (2003) pointed out that the purpose of the case study was to provide an in-depth description, exploration, or explanation of a particular system or phenomenon through quantitative and/or qualitative data collection and analysis methods. It aimed to generate or test a theory in its particular social, cultural, and historical context.

Moreover, case study as a research methodology was commonly used when there was lack of current knowledge about the issue. Feagin et al. (1991) suggested that case study was an ideal methodology when in-depth investigation was needed. In this research, the literature review demonstrated certain gaps in our knowledge about marine fish farming in Libya. This method of case study allowed the researcher to deeply investigate the

failure of fish farming, and to explore the real situation since the available literature was not adequate to construct a real perspective or hence to answer the research question. According to Yin (1994), the selection of a research strategy should be based on three conditions: (a) the type of the research question posed, (b) the extent of control over actual behavioural events, and (c) the degree of focus on contemporary as opposed to historical events. These conditions are illustrated in Table (3.1).

**Table (3.1) Relevant situations for different research strategies:**

Strategy	Form of research question	Required control of behavioural events	Focus on contemporary events
Experiment	how, why	yes	yes
Survey	Who, what, where. how much, how many	no	no
Archival analysis	Who, what, where. how much, how many	no	yes/no
History	how, why	no	no
Case study	how, why	no	yes

Source: Yin (1994)

Because the question in this research was asking "**Why?**" this encouraged the researcher to adopt the case study method. As argued by Yin (2009), "(how) and (why) questions are more explanatory and hence lead to the use of the case studies approach. Case study is an approach that supports the deeper and more detailed type of investigation that is normally necessary to answer the "**how?**" and "**why?**" questions (Rowley 2002). Basically, due to the significant lack of literature, there was a need for a deep investigation of marine fish farming with the aim of providing insights that would reflect the agricultural sector as a whole, meaning case study was more appropriate than the other methods. On the other hand, the case study method does not require control over the activity or the process being studied and it focuses on contemporary events. It was clear that the failure of marine fish farming in Libya was a contemporary event over which the researcher had no control; so, again, case study was more appropriate for this research.

The application of the other methods listed in table (3.1) (experiment, survey, archival analysis, and history) would not produce appropriate results. Experiment is a purely quantitative method that requires a high degree of control over behavioural events, and the researcher would have been required to manipulate the variables of a process to test a hypothesis (Creswell, 1994). As this research was not purely quantitative and it did not require a high degree of control over behavioural events, case study method was more appropriate.

The archival analysis method requires the researcher to collect data from verbal, visual, or behavioural forms of communication (Horsey, 2003). This method would have precluded the researcher from directly interviewing participants or observing the process over a historical period of time (Horsey, 2003). This method requires that there is no access to or control over the event being studied (Yin, 2009). As the present research focused on a contemporary event, the history method was not appropriate. Surveys are a pure quantitative method employing structured interview or structured interviews, usually of a big sample population, which in most cases are chosen randomly, for data collection to generalize across a population (Creswell, 1994). Although surveys could have provided general identification on the barriers and difficulties facing marine fish farming and causing its failure, because there were only five surviving marine fish farms, the researcher expected that the survey method would not be sufficient to reflect the reality about the failure of the marine fish farming sector; thus, a more in-depth form of investigation was needed for this case study, through employing mainly the qualitative methods of documents and interviews.

Creswell (1994) described three additional research strategies which have not been cited in the reference to Yin: ethnography, phenomenological study, and the grounded theory study. Ethnography requires observations of an intact cultural group taken over a prolonged timeframe. Phenomenological studies also require a prolonged timeframe during which a small number of people are extensively studied to develop patterns and relationships of meaning (Creswell, 1994). Both research strategies require more time than was available to the researcher to complete the research, and they were considered more appropriate for studying social events related to the participants' behaviour rather than political and economic events. Grounded theory study is based on deriving a theory through the use of multiple stages of data collection and constant comparisons and

categorization. However, the current research was not primarily concerned with new theory development; instead, the intention was to test a conceptual framework. Hence, with the knowledge gained of the characteristics and advantages of employing case study design, the researcher selected this research approach.

There are endless examples of situations and topics which lend themselves to the use of case study as a research methodology; the wide range of topics includes psychology, sociology, political science, social work, education and economics. In all these situations, the need for case studies arises from the desire to understand complex social phenomena (Yin, 2009). In this study, the researcher applied case study method to investigate phenomena of the failure in the development of the marine fish farming in Libya, in order to reflect the elements of the agriculture development process and the factors that hindered that process. The sector of marine fish farming was taken as the focus of the case study. There were two main points that made marine fish farming an appropriate case study through which to examine the framework developed from the literature and thus to answer the research question:

- Marine fish farming was one of the worst performing agricultural sectors in Libya, and this understanding was based on the researcher's previous knowledge which was drawn from the academic experience gained from working as a lecturer in the Agricultural Economics Faculty for several years.
- The relevant literature and the comparison with other MNA countries revealed that Libya had the weakest agricultural sectors despite it having similar climatic and topographic conditions to the other MNA countries. So, it seemed that there were factors other than the climatic and topographic conditions that had affected the development of the agriculture sector in Libya. As marine fish farming activity is less affected by these uncontrolled conditions, the researcher was able to exclude them from the investigation and thereby focus more clearly on the propositions developed from literature.

### **3.3.2 Designing the Case Study**

The case study approach is used to build up a rich picture of an entity, using different kinds of data collection and gathering the views, perceptions, experiences and/or ideas of diverse individuals relating to the case. Transparency and clarification over the nature of case study and what type of information and insights it might offer should help to

stimulate additional research choices. The important aspect at this point was to consider the necessary qualities of case study and to pinpoint whether or not they were related to the research purpose and questions.

When designing a case study, it is vital to plan and design how the study is to be conducted. Since case studies have been carried out on such diverse topics, in practice, it is difficult to outline any precise or general method or design for undertaking a case study. However, Yin, (2003: 27) offered five crucial components of a case study design:

1. A study's questions.
2. Its propositions (if any).
3. Its units of analysis.
4. The logic linking the data to the propositions.
5. The criteria for interpreting the findings.
- 6.

In this study, the researcher has already prepared the first and the second components in the previous chapters by means of the introduction and literature review. In this chapter, the researcher will identify the case study research process and explicate how the data were collected and then how these data were analysed. The fourth and the fifth components will be presented in the next chapters.

### **3.3.3 Type of Case Study Design Used**

When the researcher had determined that the research question was best answered by applying a qualitative case study, she needed to consider the type of case study to be undertaken. The overall study purpose generally guided the researcher in selecting the specific type of case study design (Baxter and Jack, 2008). The question to be raised was whether or not the researcher described a case, explored a case, explicated a case, or compared between cases. Yin (2009) classified case studies as explanatory, exploratory, or descriptive. Stake (1995) included three more types: intrinsic - when the researcher has an interest in the case; instrumental - when the case offers more than what is obvious to the observer; and collective - when a group of cases is involved.

An exploratory case study was defined as an initial research that attempted to explore patterns in the data and to develop a model within which the data could be viewed. In pursuing this type of study, the researcher collected the data first, and then she tried to

make sense of them, performing the required reading. The research questions of this case-study type could focus on the "what" question. Descriptive case study attempts to get information on the specific features of an issue and focuses on the "what" questions. This type of case study requires a theory to point the data collection in the correct direction. .

Explanatory research proceeds further, trying to analyse or explain why or how something happens or happened. The research question in this case was more likely to be of the "how" or "why" type. In this study, the researcher focused on a particular issue regarding the barriers that interrupted the successful development of marine fish farming in Libya. The research essentially asked a specific question: *why marine fish farming has failed?* Based on that rationale, explanatory case study was chosen as an appropriate for this research, but there were some exploratory insights. It was true that the research attempted to explain why this has happened, but it also endeavoured to clarify why this has happened, so within this context, the researcher was not just providing explanation through identifying certain propositions, but she was also attempting to find out whether new factors could emerge, which were not presented in the conceptual framework that would be examined in this research. However, this case tended to be explanatory more than exploratory.

Yin (2009) also differentiated between single (holistic and embedded) case studies and multiple-case studies. Yin (2003) indicated that the decision to employ a multiple or single case study approach depended on the kind of case study to be undertaken. Although the evidence from multiple case studies was more compelling and more robust (Herriot and Firestone, 1983), the rationales for single case design could not usually be satisfied by multiple cases. Yin (2009) offered three rationales for choosing a single case study rather than multiple cases: when the case represented the critical case in testing a theory or a theoretical framework, when it represented an extreme or unique case, and when it represented a revelatory case.

In terms of this study, the case of the marine fish farming sector tended to represent a unique and critical case study, where the researcher would examine a number of propositions presented through a conceptual framework (Chapter Four). Furthermore, amongst the other agricultural sectors, the marine fish farming sector presented the worst scenario and the lowest growth rate, which made it unique compared to the other

sectors. In addition, conducting a multiple-case study usually requires extensive resources and time which are beyond the capacity of a single researcher. For these reasons, the researcher decided to undertake a single case study designed for this study.

### **3. 4. Data Collection**

The researcher divided the primary work into three data resources (multiple sources of evidence). The first source was from inside the farms, where the researcher visited the marine fish farm sites, and conducted structured interviews with the farm directors and owners. The second source was from documents, including (government and non-government) reports (as secondary data). The third source of evidence came from a number of interviews conducted with three groups of stakeholders: the marine fish farming experts, agricultural economists, and officials. Through the adoption of this strategy, the researcher aimed to obtain as much information as possible about the issue at hand, and to triangulate the argument to at least come closer to answering the research question.

The use of multiple perspectives and different kinds of data collection was a characteristic of the increase in the quality of the case study lending weight to the validity of the findings. The use of two or more forms of data collection and/or the use of two or more perspectives is known as "triangulation". Through triangulating data and/or perspectives, it was possible to form a fuller and more robust picture of the case, enhancing claims to quality (Stake, 1995).

Blaikie (1991) argued that triangulation improved the validity of the research and that the purpose of triangulation of data resources was to develop valid and reliable instruments. For this research, triangulation was very important due to the lack of published government information about the sector. It was also important with respect to the particular reference to the Libyan socio-cultural and political context, where it was difficult to obtain real and credible data, either because of the lack of information resources or because of the secretive nature of the political system, which provided little information about government functions and processes. Therefore, the researcher had to access available government documents; she also managed to interview some officials and key players from the academic and research institutions so as to obtain valid and

reliable data from these resources. The researcher also obtained information from the real ground of marine fish farming through structured interviews and site visits to the surviving marine fish farms.

### **3.4.1. Documents**

Secondary data (Grey literature) was defined as data which already exist and were collected for other purposes. Documents were used as part of the current research as a secondary source of data. Generally, sources of external data are, for instance, various computerized databases, associations, other government agencies and different published sources such as libraries and newspapers (Burke and Larry, 2005). Such data help to make primary data collection more specific since they enable the researcher to figure out the gaps and deficiencies in data acquisition and the additional information that needs to be collected. They also help to improve our understanding of the problem at hand (Boslaugh, 2007).

Secondary data also have the advantages of generally having a pre-established degree of validity and reliability; thus, re-examination by subsequent researchers is not required. Moreover, secondary data could also be useful for designing successive principal research and in providing a base for comparison with the gathered major data results. Thus, it is always sensible to commence any research activity with a review of secondary data.

Grey data was employed in addition to primary data. The researcher used a number of documents to support the primary data gathered from the interviews for examining the conceptual framework. To the best of the researcher's knowledge this was a comprehensive list of documents relevant to the research topic. There may be other documents but due to the limited availability of published secondary documents about Libyan agriculture, and due to the lack of a formal information system and the lack of archive store centre in Libya available to researchers, it was difficult to find all the documents. In this regard, the researcher employed her personal relationships, especially with colleagues at Omar Almokhtar University, to collect these documents. It was not a selective list; rather, it included all documents that the researcher could find.

Briefly, the documents were classified into two groups: governmental and non-governmental. The documents were written in different languages; some of them were written in Arabic while others in English. Also, some of the documents were in paper format whereas others were electronic. The details about these documents are presented in the Table (3.2).

**Table (3.2) Government and non-government documents:**

<b>Name of report</b>	<b>issued by</b>	<b>language</b>	<b>type of report</b>
<b>Government documents</b>			
Libya at the dawn of new era	National Council	English	Electronic
Evaluation of agricultural policies (1970-2000)	Ministry of Economics & Planning	Arabic	Paper
General frame of agriculture sector	General Council of Planning	Arabic	Paper
report of agricultural development (1970-2005)	General Council of Planning	Arabic	Paper
report of preparation of fish farming plan	Sea wealth institution	Arabic	Paper
development conducted in marine fishery and fish farming sector	Ministry of Agriculture	Arabic	Paper
Annual report of follow up fish farms.	MBRC	Arabic	Paper
National strategy of Libya's non-oil economy	The General Planning Council of Libya	English	Electronic
<b>Non-government documents</b>			
FAO Achievements in Libya	Food and Agriculture organization (FAO)	English	Electronic
National medium term investment programme	New Partnership for Africa's Development (NEPAD)/ Food and Agriculture organization	Arabic & English	Electronic
Planning for aquaculture development in Libya	LIBFISH /No. 9/ FAO	English	Electronic
Marine wealth sector (development planning overview (Libya)	LIBFISH /No.14 /FAO	English	Electronic
National Agricultural Policies	Integrating European Research Area	English	Electronic

The critical analysis of the data involved rigorous cross examining of both government and non-government sources. Findings were then examined in the context of policy and its implications. This process, also using documents, was intended to increase the validity of the primary resources, through cross-verifying or triangulating the evidence

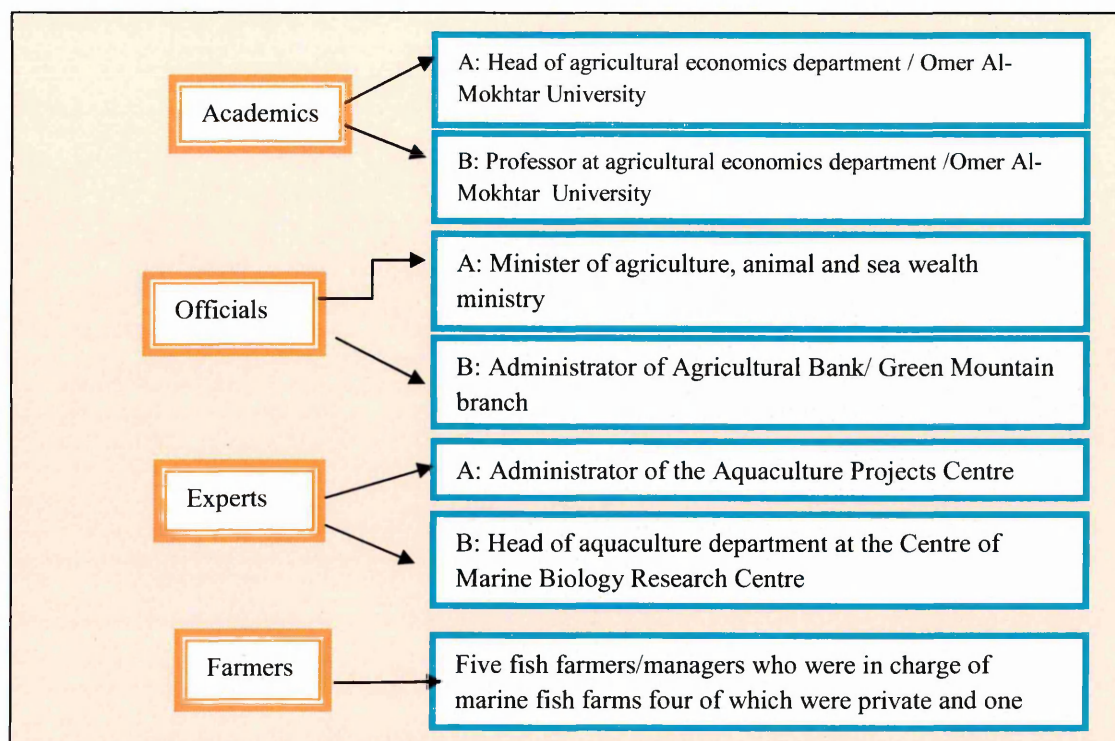
from different data resources. This also helped to make the discussion of the topic more objective. On the other hand documentary research was used to collect evidence from these documents in terms of examining the issues presented in the conceptual framework. The documents also fill the gap in the primary research in terms of specific operational information about marine fish farming; For example, the researcher was not able to collect data about the failed farms; however, the annual reports prepared by MBRC provided the researcher with the necessary data about these farms, The data included descriptive information about the visited fish farms across Libya, and detailed reports about every single farm, presenting experts' vision on each farm and how it was operated. This provided the researcher with a more complete picture about the marine fish farms (successes and failures), which in turn was expected to provide insights and indicators of the development process in the marine fish farming sector.

### **3.4.2. Interviews**

In this study, the interview method was adopted as appropriate for this qualitative research. The purpose of the interview method was to obtain the necessary data. A great deal of qualitative data can be gained from conversing with people; thus, a qualitative research interview that sought to cover both the factual and the content levels was deemed more appropriate for the current research (Kvale, 1996). Basically, interviews were conducted with four groups of stakeholders: officials, academics experts, and farmers (see Figure (3.2)).

Interview method was chosen because it is relatively informal in style, enabling the researcher to ask questions in a set of format to investigate interesting and unexpected issues. According to Mack et al. (2005), in qualitative research, there are three common types of sampling: purposive, quota and snowballing. For this study, purposive sampling was found to be the most appropriate sampling technique for meeting the research requirements. Burke and Larry (2005) argued that sampling in qualitative research is usually purposive; the primary goal of qualitative research is to select information-rich cases. Purposive sampling techniques are usually adopted when the sample is viewed as representative of the whole population and when it helps the researcher to fulfil the research inquiry. Saunders et al. (2007) identified that purposive sampling could take a number of shapes, such as extreme cases, critical cases, and heterogeneous, homogeneous, and typical cases.

**Figure (3.2) Stakeholder interviewees and their respective positions:**

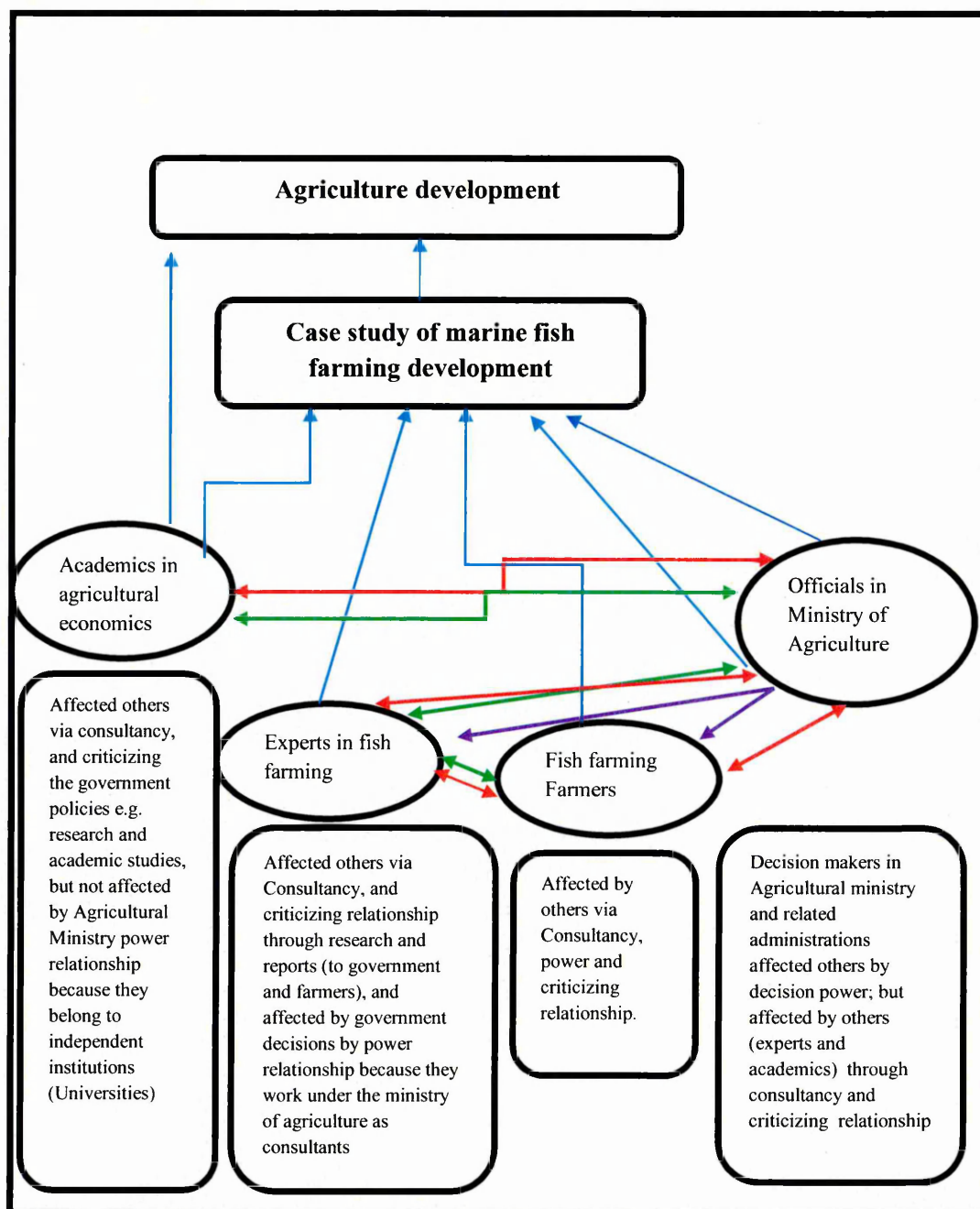


Source: the author

The participants (whether officials, academics, experts or farmers) were chosen on the basis of judgmental sampling, where the selection of the sampling units was based on the informants' experience and knowledge about the issues undertaken by the study (Kitchin and Tate, 2000); those key players were expected to provide the data and information required to examine the conceptual framework and consequently to help to answer the research question.

Figure (3.3) demonstrates the mapping of the selected stakeholders on the basis of the feedback to the research topic along with the data required on the relationships among the stakeholders. According to their position as governors, it was expected that the officials would present data that reflected governmental perspectives, to justify and defend government policies and functions which affected the development of the agricultural sector in general and marine fish farming in particular.

**Figure (3.3) Mapping of the stakeholder sample**



Source: the author

#### Meaning of arrows

- Criticizing relationship
- Consultancy relationship
- Direct and indirect Feedback to the case study and to core topic of the research
- Power over relationship

The Minister of Agriculture was selected for interview as he was at the highest level of the decision making process. Besides, the information that he gave reflected the official viewpoint regarding government policies, and their plans and tendencies towards

developing agriculture and the marine fish farming sectors. They also revealed the difficulties facing the sector from the officials' perspectives. The Agricultural Bank Director was chosen to be interviewed as it was expected that he would provide rich information regarding the government financing policies and the influence they have had on the development of the sector.

The researcher expected that the government would represent a power relationship to the other key players in the sample. The officials were on the side of the decision makers who would, presumably, affect the farmers and the experts who were in the institutions that administratively work under the Ministry of Agriculture. On the other hand, it was expected that the experts would present practical and technical data and information that reflected their concerns regarding the difficulties facing the marine fish farming sector specifically, and mirror their perspectives as people who were directly involved in marine fish farming and who in addition had long experience in this field.

The first expert was chosen on the basis of his position as the administrator of Aquaculture Projects, a department which is under the Ministry of Agriculture. The other expert was the head of the Aquaculture Department in MBRC and Director of the Field Visiting Team from the centre that conducted annual surveys covering the fish farms across Libya. Based on their positions, those targeted experts were expected to provide more technical and practical insights on the sector. They were also expected to criticize and deeply discuss the issues presented in the framework on the basis of their practical knowledge and long experience in field of marine fish farming. This perspective on these two experts was mainly built up according to personal positionality in terms of the researcher employing personal relationships to access to interviewees.

It was anticipated that the academics would present data that reflected their criticizing perspectives, on political and economic policies related to the agriculture sector. Also they would give insights into the particular sector of marine fish farming. The two academics have had long experience in the field of agriculture economics, exceeding 30 years in each case. They have published many academic papers, on various agricultural issues such as agricultural productivity, agricultural policies, agricultural efficiency and agricultural development and planning.

These two academics were not only selected for interview because of their long experience, and overarching knowledge, but also because of the personal relationship as colleagues in the same university where the researcher works as a lecturer. The researcher was of the opinion that they would respond positively to the questions, and speak freely, based on trust, within a political culture that did not allow people to express negative views about the government and political leadership. It was hoped that the in-depth interviews would encourage them to express opinions that they could not voice in their publications.

The marine fish farmers were expected to provide internal insights into the problems facing marine fish farming in particular. Likewise, the farmers would be able to give critical perspectives on the different issues targeted by the structured interviews, whether their views veered towards the government side (the decision makers) or the expert side (those who provide technical consultancy).

In social science research, there are many types of interview, but the most common forms are: structured, unstructured, and semi-structured (Dawson, 2002; Miller and Brewer, 2003). Two types of interview were employed in the current research:

#### **3.4.2.1. Semi Structured Interviews:**

The researcher utilized the interview technique to obtain rich data to test the conceptual framework and thus to answer the research question. According to Bernard (1988), semi-structured interviews are best used when the researcher has only one chance to interview a participant. As some of the key interviewees participating in this research were government officials and it would have been difficult to interview them more than once, this method was useful. In this research, semi-structured interviews were conducted in order to investigate the issues that emerged from the literature and thus to modify or adopt the conceptual framework that had been developed from the literature.

Although the interviews were guided by a set of specified and predetermined questions, the researcher had the scope to delve further by facilitating discussion. Robson (2002) argued that this allows for more clarification, and that the data generated would be rich and qualitative. The questions were standardized to ensure that the researcher covered the correct material. This kind of interview collected detailed information in a style that

was somewhat conversational. Semi-structured interviews are often used when the researcher wants to probe deeply into a topic and to understand thoroughly the answers provided.

#### **3.4.2.2. Interview Schedules (Structured Interviews)**

Face to face interviews use predetermined questions as the interview schedule (Lewis et al., 2004) and have two main components: a set of questions designed to be asked exactly as worded, and instructions to the interviewer about how to proceed through the questions. The questions appear in the order in which they are to be asked. The questions are designed so they can be administered verbatim, exactly as they are written.

A structured interview serves to extract data from the respondents. It functions as a standard guide for the interviewers, each of whom needs to ask the questions in exactly the same manner (Collis and Hussey, 2003). Miller and Brewer (2003) referred to the structured interview as a list of written questions that could be completed by verbally responding to the questions in the presence of the researcher. This version is commonly known as a scheduled interview. In terms of the current study, the researcher found it more appropriate to ask the respondents to complete the structured interview by verbally responding to a number of closed-ended and open-ended questions in the presence of the researcher. This type of structured interview was chosen for interviewing the fish farm farmers and directors of the sites. Generally, with these interviews, all interviewees were asked the same questions; they were also asked to choose answers from among a set of alternatives (see Appendix 3). This conformed to the type of a standard interview schedule design with predetermined questions to be answered in a face-to-face interview.

This type of interviewing was a more convenient way of gaining qualitative data from survey style interviews (Patton, 1990). The reasons for using this particular form of structured interviewing were:

- The number of farms targeted by the study was very small, and using postal questionnaires would have increased the risk of losing some of them for one reason or another; for example, if the farmer did not respond or send the questionnaire back to the researcher. Moreover, even if only one structured interview had been lost, it would have

meant the loss of 20% of the sample, and this was considered a high percentage that would have negatively affected the sample and hence the validity of the data collected.

- Interviewing the farmers face to face was expected to encourage the farmers to be more confident when answering a specific set of questions, through explaining to them the drivers behind conducting such research. It was also expected that the farmers might not fully understand the questions and thus would not be able to give the required answer for the determined questions, so the researcher would enhance the validity of the structured interview by being present to explain the misunderstood questions.
- Asking all the farmers the same set of questions would facilitate the analysis of the data, and promote a valid discussion of already prepared themes of these interviews.

### **3.4.3. Research Themes Tested in the Primary Research**

For this research, different questions were designed to collect different types of information, according to the themes and sub themes suggested by the conceptual framework (Figure 2.6). Therefore, the questions were designed to investigate the following themes:

#### **1. The current state of the marine fish farming sector.**

#### **2. Drivers of government policies:**

##### **2.1. The role of the oil sector**

##### **2.2. Political Ideologies**

##### **2.3. Planned economic system**

#### **3. Elements that Obstruct the Development process (Marine fish farming sector):**

##### **3.1. Lack of an effective financing system**

##### **3.2. Lack of marketing system**

##### **3.3. Lack of a clear vision of planning**

##### **3.4. Weak infrastructure**

##### **3.5. Institutional instability and unstable rules and regulations**

##### **3.6. Lack of information system**

##### **3.7. Lack of skills and training programs**

##### **3.8. Corruption**

##### **3.9. Mismanagement**

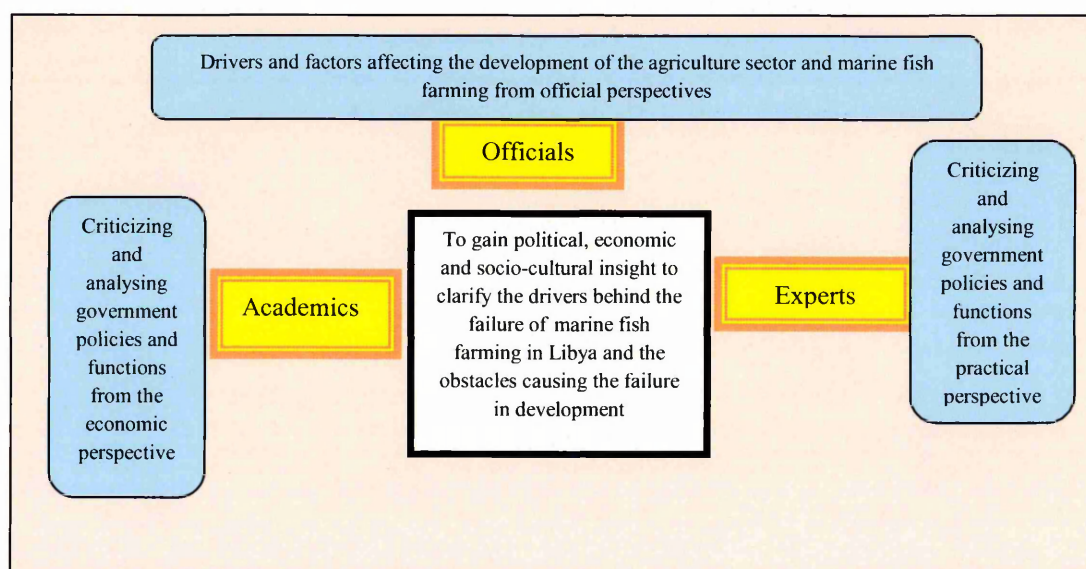
##### **3.10. Lack of monitoring systems**

#### **4. Achievement of development targets:**

Food self-sufficiency, contribution to reducing the role of oil and diversification of the economy, and reducing unemployment.

The semi-structured interviews involved three groups of stakeholders: Academics, officials and experts. They were formulated to contain a number of themes covering issues related to the topic of this study. The objective of these interviews was to provide a critical discussion on the development of marine fish farming in Libya, and how it could be generalized to the other agricultural sectors in Libya and elsewhere. They were also intended to identify the main drivers and the reasons behind the failure of the marine aquaculture in Libya. The questions were designed to be more open ended and to give the interviewee the chance to express his/her opinion independently. These themes were derived from the literature review and the conceptual framework, as is illustrated in figure 3.4.

**Figure (3.4) Linkage of themes with semi-structured interview method:**



Source: the author

For the structured interviews the questions were designed to collect deeper information, about the practising of marine fish farming in addition to the themes from the conceptual framework. These themes were carefully determined with respect to the changes that happened in the research focus, moving from a purely economic study to a more in-depth eco-political study, focusing on qualitative rather than quantitative data.

In the interests of precision, it might be important to clarify the changes that happened at this stage of devising the data collection methods, in terms of the structured interviews. At the beginning, the researcher expected that the study population would consist of hundreds of farms. In this context it is also relevant to mention that in the first stage of the research the number of fish farms identified by the government report from the General Authority of Marine Wealth (2008) exceeded 174. The researcher planned to distribute questionnaires to a number of farms based on the statistical measures to define the valid size of the chosen sample. Therefore, the researcher did not originally plan to conduct interviews with the farmers, but revised her research design when she found out that the actual number of farms was significantly lower than that given by the Ministry of Agriculture. Of 17 farms identified by the MBRC in 2004 through field survey, 12 were defunct and only five were still functioning. Hence, the researcher decided to use all the surviving farms as the sample, and to meet the people in charge on these farms face to face. It is pertinent to point out that it was extremely difficult to visit the defunct farms.

Regarding question design for the structured interview, the researcher originally intended to collect data appropriate to a purely economic study, focusing on issues related to economic efficiency, profitability, feasibility and investment. However, when the research topic started to change (see section 3.0), the researcher started to focus on deeper issues and problems beyond practical economic considerations and started to investigate factors and drivers related to the development of agriculture sector by which to explain the failure of marine aquaculture development. However, because fewer farmers were involved than originally anticipated, the researcher focused on collecting more in-depth operational data that covered issues linked directly to the practice of marine fish farming, to address the current situation in the sector. She also felt that such information would be valuable for further researchers due to the significant lack of information and literature about the sector.

It was necessary to provide a description of the current status of the operated fish farms that would stand closer to the truth concerning this sector of agricultural business. This would meet the conceptual need to establish that there had been failure to achieve development targets. The data collected from the first sections of the structured interview were intended to meet this need, with the researcher expecting to obtain valid data describing the direct difficulties facing the farms on the ground; thus supporting the

concept of failure of the marine fish farming sector to achieve the targeted development. The link between the framework and the structured interview themes is clarified through the following points:

First, there were those factors that reflected the problems facing the marine fish farming in particular. So the first part of the structured interview was designed with closed questions to collect more details about the fish farms. Moreover, it aimed to collect data directly related to the operation of the marine fish farms. This raised concerns of a financial, technical (operational costs, (fixed and variable) and production operations), and marketing (markets, prices, profits and returns) nature. Some of these issues might be limited to fish farming operations while others might be generalized to other agricultural sectors. Second, there were those factors that might have reflected on the development of the agriculture sector.

The second part of the structured interview consisted of semi closed questions that gave the respondents a chance to clarify their opinions about wider problems facing the marine fish farming sector outside the farming field, including economic, political, social and ecological concerns. It dealt with the opinions and perspectives of the farmers regarding the obstacles that hinder the development process and that could be generalized to the other agriculture sectors. In general the data from all resources: documents, semi structured interviews and structured interviews were expected to address the issues presented in the conceptual framework.

### **3. 5. Logistical Considerations for Conducting Primary Research**

There were many considerations in deciding on the appropriate method of data collection, and even if the method chosen was appropriate for answering the research questions, there were other, logistical considerations that the researcher had to address in conducting the field research:

#### **3.5.1 Gaining Access to Targeted People**

Laurila (1997) mentioned three types of access. The first type was formal access which referred to achieving an agreement between the organization and the researcher on specific conditions in terms of what, when and how empirical data were to be collected. The second type was personal access that entailed the researcher knowing the relevant executives, managers and individuals in the organization. The third type of access involved the researcher being able to foster personal rapport based on a good understanding, as well as collaboration between the researcher and the organization. The researcher employed her personal relationships to access some key interviewees, especially the officials, since it was particularly difficult to access officials in higher governmental positions.

The difficulty of accessing other interviewees was compounded by the fact that the researcher was a female, and for this reason she had to rely on personal relationships originally developed via male family members (father, brother and husband) who facilitated these interviews and attended them as well (see Section 3.2). Likewise, the issue of gender arose when meeting experts. However, compared to gaining access to officials in high governmental positions, accessing the experts was somehow easier, due to the colleague relationship with some experts in the MBRC, who facilitated contact with the expert interviewees. Furthermore, being a researcher she was made welcome at the centre, as the experts were originally researchers and shared a common scholarly background and an interest in research work.

Moreover, the Marine Biology Research Centre was the main centre for aquaculture research in Libya, which conducted the annual surveys of aquaculture in Libya; thus, it was justified for the researcher to target the MBRC to gain access to experts in aquaculture. Contact with all the participants was established before the field research began.

Indeed, due to time limitations it was important for the researcher to access the interviewees as quickly as possible. If the researcher had depended on the normal administration procedures to arrange a meeting with the high-ranking officials, it might have taken longer than the time scale of the field research, especially as she was studying in England and the field study was conducted in Libya.

According to Berg (2007), gaining access to someone who could serve as an entrance guide was an appropriate approach, since it could help to establish the researcher's credibility. For instance, though the researcher personally knew the Minister, accessing him was facilitated through a relative's relationship with his secretary<sup>30</sup>. The case of the head of the Agricultural Bank was not much different; the researcher also employed a relative's relationship to facilitate access to him. Since the researcher was a member of the agricultural economics department of Omer Al-Mokhtar University, it was not difficult for her to access academic staff members, not just at this university but in other universities in Libya as well.

The researcher found access to the marine fish farms problematic due to the location (see figure 3.5 below); this was exacerbated by the fact that as female, culturally, she was inhibited from travelling from farm to farm. The researcher required much support from her male family members to conduct field visits to these farms, which were dispersed over 1900Km. However, of the 17 farms identified by the MBRC in 2004 as functioning marine fish farms, only 5 farms were still operating. The researcher consequently based the sample on the surviving five farms, but although she made frequent attempts to visit the defunct farms, she was unable to do so. The reasons for this problem included the fact that as these farms ceased to operate many years ago, they were unoccupied. Moreover, their contact information and registration certificates were difficult to access due to the inefficient information system in Libya. Also, some of these farms had been only partly established many years ago and they had never operated since then.

### **3.5.2 Timeline for Conducting the Field Research**

To complete the data collection from the primary resources, the researcher prepared a plan to effectively exploit the limited time. However, the field study plan was based on three main determinants:

1. The limited time scale.
2. The distance between the sites where the interviewees were based and farm visits were to be conducted.

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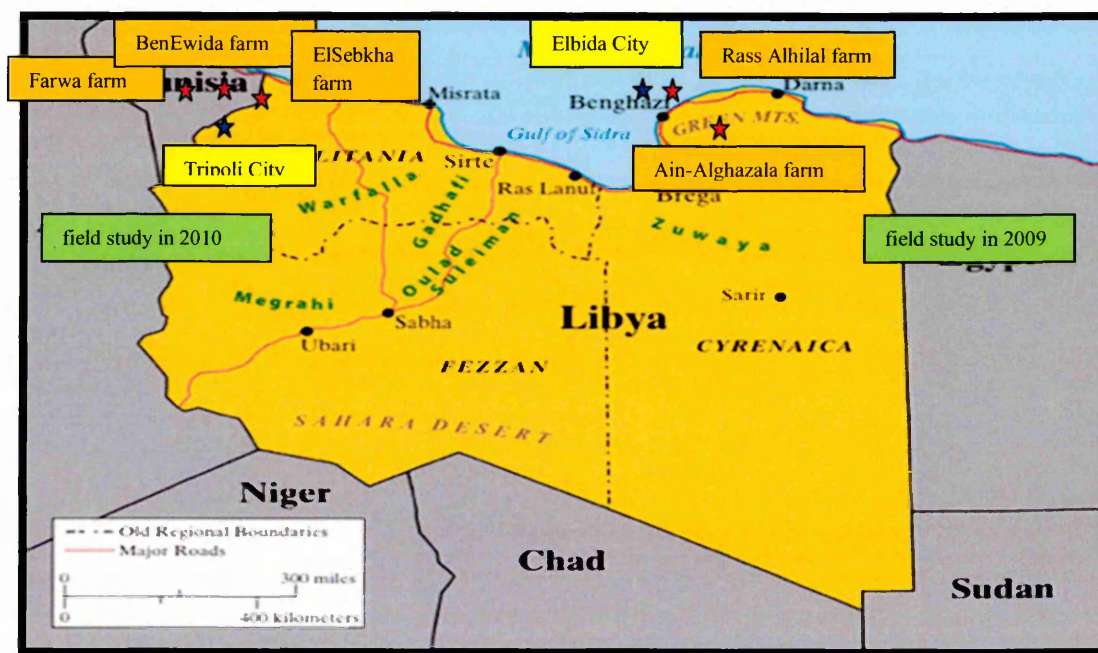
<sup>30</sup> The minister was a lecturer at Omer Al-Mokhtar University, and he was on the academic teaching staff when the researcher was at undergraduate level (1994-1998), the researcher was one of his students from 1994-1997

3. The availability of funding to cover travelling expenses.



The researcher conducted the plan in two main stages:

- **The First stage was in 2009 (from 20<sup>th</sup> of May to 30<sup>th</sup> of June) and targeted the key players located in the Eastern part of Libya:** In this stage, the researcher managed to conduct site visits to two marine fish farms located in the Eastern part of Libya and to conduct four semi-structured interviews.
- **The Second stage was in 2010 (from 1<sup>st</sup> of August to 15<sup>th</sup> of September) and targeted the key players located in the Western part of Libya:** in this stage, the researcher managed to visit three marine fish farms located in the Western part of Libya and to conduct two semi-structured interviews.

**Figure (3.5) plan of the primary field research in Libya:**



Source: developed by Author.

Note:  Red stars indicate structured interviews on marine fish farms  
 Blue stars indicate semi-structured interview locations

Two improvements were made during the research period to the original research plan. The first concerns one of the fish farms, the farm at Ain Al-Ghazal, which was visited in 2009 during the trip to the Eastern study area. Although it had only started to operate in that year, the next year, 2010, when the Western part of Libya was targeted, the researcher was informed that Ain Al-Ghazal farm had stopped operating. Hence, the

researcher decided to revisit the farm as it was a good opportunity for her to see one of the recently failed farms at close range. Unfortunately the researcher was not able to meet the person who had been in charge of this farm; however, she was able to visit the site and take some notes.

Secondly, the researcher revisited some of the interviewees after the events of 17 February, 2011 in Libya, a popular revolution that brought down Qaddafi's regime in Libya. This revolution caused a new political atmosphere of freedom to spread throughout the country, and initiated various changes, which although difficult to measure would be possible to sense. In the light of these changes, the researcher thought that it would be useful to re-interview the key players in this study regarding questions relating to the decision makers and their political roles.

The idea was to ascertain whether people were more confident in giving their personal opinions or whether they would change their answers to some of the questions that had been asked, without any political influences and in the absence of the security grip of a regime which prohibited people from expressing any opinion that openly criticized the political leadership. It was actually a chance to examine the extent of the credibility of data obtained from people under different political circumstances. It was expected that this initiative would not only reveal political influences on people's opinions, but would also increase the credibility and objectivity of these interviews.

As it was very difficult to travel to Libya in the period of armed conflict, the researcher decided to continue these interviews by email. The researcher re-asked a specific set of questions related to government policies and political issues. The researcher was not able to contact all the key interviewees; only two of the stakeholders were re-interviewed by email. Although this initiative was not part of the original plan, it was added to the research to enhance the validity and credibility of the data gathered by the researcher.

### **3.5.3 Field Research Language and Communication Issues**

The researcher carried out interviews with the key informants in Arabic. This was mainly because it was their spoken language and the only means of communicating with them. However, these interviews would be translated into English. The structured

interviews were conducted in Arabic and the responses were transcribed directly onto an answer sheet by the researcher (structured interviews). The farmers were familiar with this type of interview, as the researcher followed a similar technique to that adopted by the MBRC in their annual survey. The expert who ran that field survey had practised that technique successfully for more than five years and hence the researcher expected it would be effective.

On the other hand, the semi-structured interviews were recorded on tapes and then transcribed onto paper. They were then translated into English. The key informants participating in the semi-structured interviews were happy to be interviewed and accepted the recording process. The following re-interviews with some of the targeted interviewees were simply translated, as they were sent to the researcher in the written format of email.

### **3. 6. Data Analysis**

Data analysis was performed after the raw data had been organized in such a way that useful information could be extracted. The process of ordering the data was essential to comprehending what the data contained and what it did not contain. There are various techniques for data analysis and it can be quite easy to manipulate data in the analysis process to arrive at desired conclusions. Thus, it was essential to pay close attention to the process of data analysis and to reason critically about the data and the conclusions drawn. However, the behaviour and emotions of the interviewees had no influence on the produced data and were not relevant to the current study.

As this research was qualitative, it was necessary to seek appropriate data analysis techniques in order to extract useful information from the qualitative data. In general, narrative analysis was employed in this research. Reissman (1993) observed that narrative analysis in the human sciences belongs to a family of approaches that includes various kinds of text, which have an episodic form in common. Investigators' definitions of narrative analysis lead to diverse methods of analysis, all of which require the extraction of text for further analysis, which entails selecting and organizing documents, composing field notes and choosing sections of interview transcripts for closer review (Silverman, 2001).

Narratives do not speak for themselves; they require interpretation when used as data in social research. However, there are several types of narrative analysis; they include thematic analysis, structural analysis, interactional analysis and per- formative analysis. Qualitative data analysis in this study was carried out by identifying patterns and themes to make sense of a mass of qualitative data. Boyatzis (1998) argued that the emphasis is on the content of a text, "*what*" was said more than on "*how*" it was said; the "told" rather than the "telling". Thematic analysis was adopted in this study to analyse data drawn from the different resources, which involved grouping many different narratives into similar thematic categories; each item in the group meant the same thing or referred to the same issues.

The researcher had been concerned about the means of analysing the required data since the first stage of this study. Because the interviewees were asked to express their experiences and to identify drivers of development in Libyan agriculture in general and in marine fish farming in particular, the study focused on the text itself and the content of the dialogue, which was relevant to the issues presented in the conceptual framework and to answering the research questions.

### **3. 6. 1. Steps of Thematic Analysis**

The first step of data analysis was carried out by transcribing the raw recorded data and then translating them into English as well as converting all data collected from the structured interviews to Microsoft Word format and translating them into English. The (government and non-government) documents were then analysed. However, it was difficult to translate all the documents due to the large volume, which accounted for more than one hundred and fifty thousand words.

In the second step, thematic analysis was used to identify the themes, using the patterns presented in section (3.4.3). So the researcher started with a prepared list of themes, and then searched the data for text to match these themes. This procedure directs the researcher's path in examining the data (Taylor and Renner, 2003). This step was conducted through coding the interviews and document texts and phrases using colour

highlighting to match them to the themes, identifying them on separate sheets. No one, to date, can claim final authority on the "best" way to code qualitative data.

Geoffrey (2007) identified that some researchers use colour codes to identify these "blocks" of text to provide a visual cue of the different ideas/themes represented in the data. Coloured highlighters were useful for distinguishing the different themes embedded in the interview data. Meanwhile, Saldana (2009) and Boyatzis (1998) also touched upon the colouring of text in the process of manual qualitative data analysis. Saldana (2008) made reference to circling, highlighting, bolding, underlining, or colouring rich or significant participant quotes or passages to draw the attention of the researcher, thereby facilitating the coding process, in addition to coding with words and short phrases.

The researcher looked for key categories and themes that would help to organize the discussion into stages. Table (3.3), displays these themes, which were highlighted in different colours to make it easier for the researcher to recognize the categories. The coding was conducted manually using this colouring technique.

**Table (3.3) Themes of data analysis coded by colour:**

The efficiency and productivity of the marine fish farming sector
Achievement of development targets
<b>Drivers of government policies:</b>
1) Role of the oil sector
2) Political Ideologies
3) Planned economic system
<b>Elements obstructing the development process of marine fish farming sector:</b>
1) Monitoring system
2) Mismanagement
3) Corruption
4) Lack of skills and training programs
5) Lack of information system
6) Institutional instability and instability of rules and regulations
7) Weak infrastructure
8) Lack of clear vision of planning
9) Lack of marketing system
10) Lack of efficient financing system
11) Other issues emerging during the analysis

These themes were mainly derived from the conceptual framework which was developed from the literature review (see section 2.3.7). Weston et al. (2001) argued that their approach to the collection and analysis of the interview data was influenced by a number of conceptual frameworks that emerged from the context and the communities. On the other hand, their biases and perspectives influenced interpretation throughout analysis, from how the codes were developed to how the results were interpreted.

Researchers have tried to recognize the conceptual frameworks that influenced their interpretations and analysis, although some may be so implicit that they are unrecognizable. They were quite aware that these frameworks formed the basis for understanding approaches to coding interview data. Creswell (1998) referred to this as a priori theoretical orientation whereas Charmaz (1990) defined it as a logical deductive approach, in contrast to, for instance, grounded theory, where the questions are clarified during data analysis.

The themes that were identified based on the expectations of the researcher focused on operational issues that pertained specifically to marine fish farming, which could not be generalized to the other agricultural sectors (see section 3.4.3). However, from both the conceptual framework and the researcher's background, other issues were expected to emerge during the analysis process, which would be considered and coded by the same technique.

**Table (3.4) Themes of data analysis and the relevant resources:**

Analytical themes based on the conceptual framework	Data resources
Drivers of agricultural development	Semi-structured interviews/ documents
Elements obstructing marine fish farming sector development	Semi-structured interviews/ documents
Elements obstructing the practices of fish farms	structured interviews /documents
The state of marine fish farming	structured interviews/documents
Achievement of development targets	Semi-structured interviews/documents

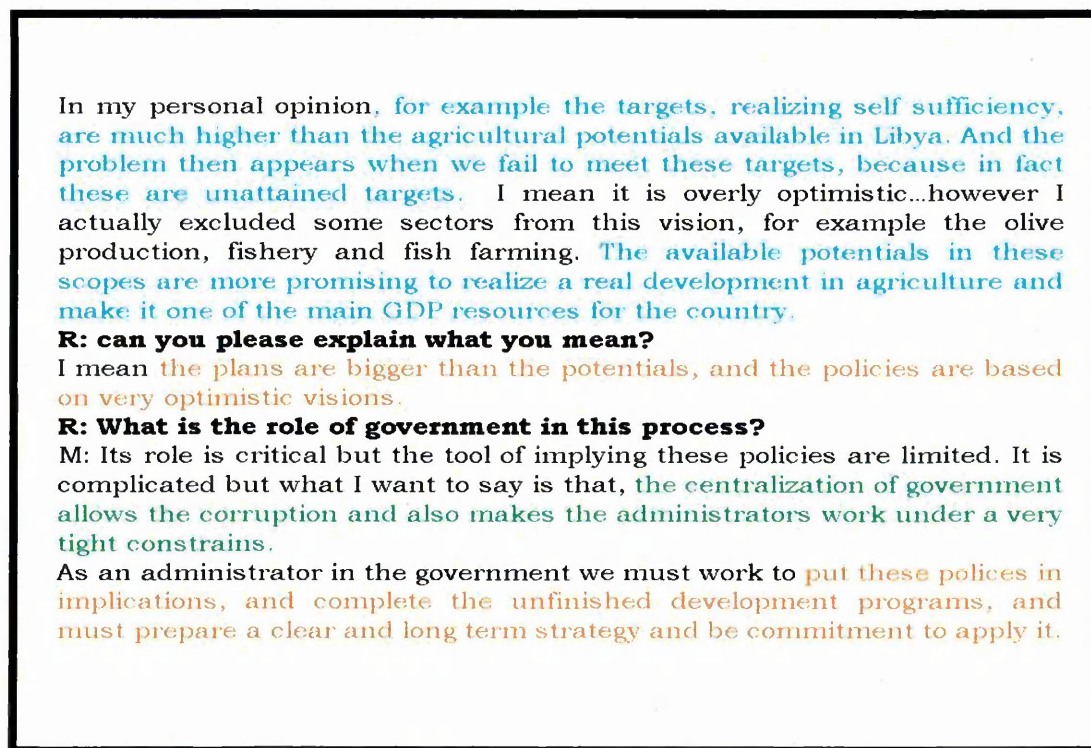
Source: the author

The themes used to analyse data from the semi-structured interviews were the same as those used to analyse data from the documents. On the other hand, some themes could only be found in the structured interview and some technical documents. Table (3.4) presents the themes in relation to the relevant sources of data. In the following section the researcher clarifies the methods applied to analysing data from each resource, based on the second step principles:

### 3. 6. 1.1. Analysis of qualitative data from the semi-structured interviews

The researcher examined the transcriptions of the interview texts that reflected the identified themes, as demonstrated in Figure (3.6). However, whilst reading the transcriptions, the researcher expected that new issues might arise outside the themes that were already identified.

**Figure (3.6) Coding of interview text using colour technique:**

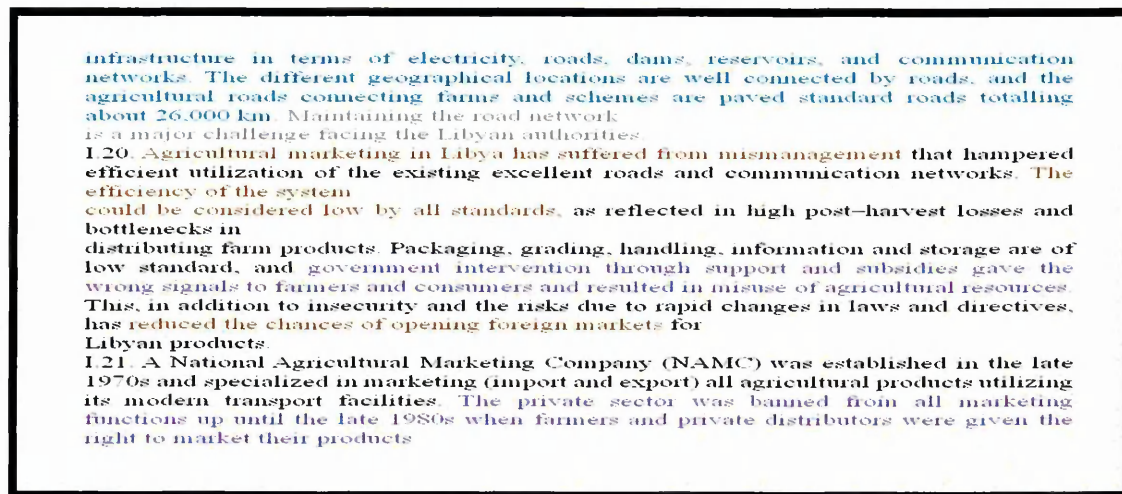


Source: raw data from interviews,

The researcher copied the texts coded from the transcriptions and pasted them into different word document lists according to text theme and the participants' responses. Then, the researcher highlighted the key words that identified the themes clearly and linked them to the issues presented in framework (see Figures 3.7).

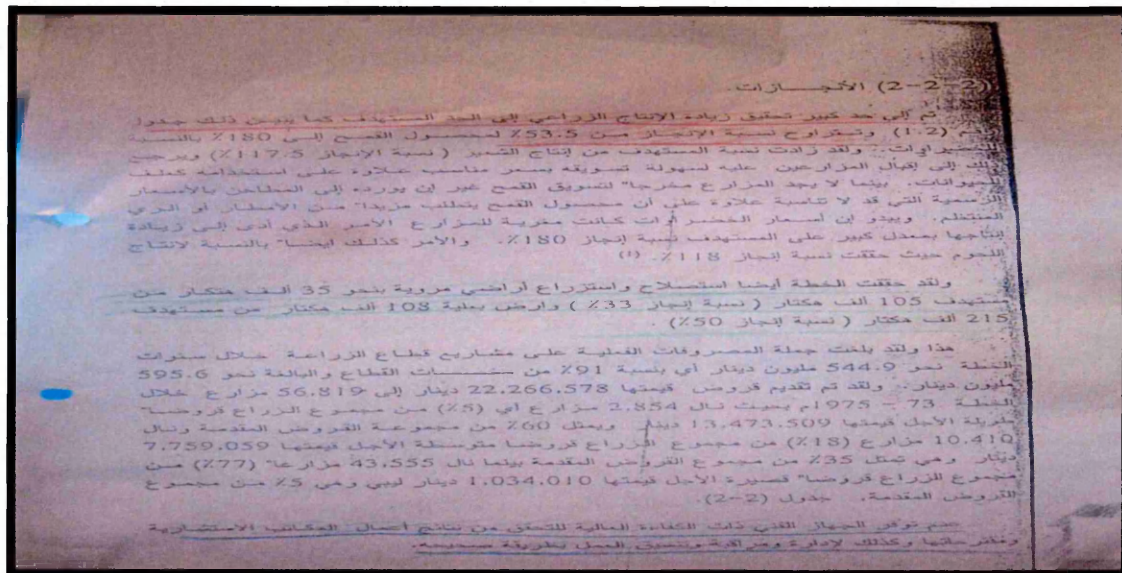


**Figure (3.8) Coding of (Electronic format) documents text using colour technique:**



Source: raw data analysis of documents

**Figure (3.9) Coding of (paper format) documents text using colour technique:**



Source: paper documents

The researcher copied the texts coded from (government and non-government) documents and pasted them into a different file, arranging the lists according to theme and document type. Then, the researcher highlighted the key words and texts that identified the themes clearly and linked them to the issues presented in the framework. The methods of transferring the coded texts or phrases from the original documents to the Microsoft Word format under analysis (the documents that contain the identified themes listed in tables), was different for the paper/ Arabic documents, as the researcher translated the coded texts and typed them into a Microsoft Word file (see Figure 3.10).

**Figure (3.10) Analysis of the raw data from documents by listing according to text themes and highlighting in different colours:**

Analysis of non governmental documents (part 2):					
Non governmental documents					
	FAO's achievement in Libya 2011	National medium term investment program	planning for aquaculture development in Libya	marine wealth sector (development planning overview Libya)	national Agricultural Policies
Current state of marine aquaculture efficiency	weak performance of agriculture sector: fishery and aquaculture	low performance seen almost across all sub-sectors of agriculture: poor performance of the fishery sectors	Although a start-up program of aquaculture has existed in one form or another since around the mid-1970s but production still insignificant	the sector productivity is low if comparing to other Mediterranean countries	inefficiency that characterizes agricultural productivity in Libya: productivity of the sector remained low
Achievement of development targets	Massive investments were injected in agriculture in the two decades following the revolution  Libya has recently embarked on economic reforms and integrating agricultural policies to conserve and efficiently utilize natural resources and enhance	National Medium-Term Investment Program (NMTIP) presents a synthetic assessment of the performance of Libyan agriculture  Authorities are convinced, far more than ever, of the need for integrating their	Growing interest in fish farming is evident through the various projects that have been undertaken since the mid-1970s. Official macro self-sufficiency in food production. In the case of aquaculture this translates into material support to development efforts in the field	National leadership, as part of an overall emphasis on economic diversification, has given high priority to development of food self-sufficiency. This is reflected in the pattern of state investment allocations, about	The main objective for agricultural development in agriculture development in basic food crops  Government efforts in agriculture development have been characterized by sizable investments and subsidies
Drivers of government policies:					
The role of oil	Libya economy depends on hydrocarbons, which on the average contribute to More than 45% of	Libya's economy depends heavily on hydrocarbons  Oil revenue remains the sole	subsidies to develop fish farming are provided from the public purse  with availability of high	The economy of Libya is dominated by the oil sector Over the last decades oil has fundamentally	Because of Libya's economy heavy dependence on oil revenues <sup>1</sup> , its GDP fluctuates closely with

Analysis of Government documents (part2):							
Government documents							
	Libya at the dawn of a new era (2000)	Evaluation of agricultural policies (1970-2000)	Government of agriculture sector 1984	National Economy Strategy	Report of agricultural development (1970-2000)	development conducted in marine fishery and fish farming sector 2000	Findings
Current state of marine aquaculture efficiency	both public and private companies are relatively less sophisticated than regional peers	Low contribution to the national economy, there is a lack of economic efficiency of agricultural projects	There is a lack of productivity of agriculture sector in general but there are a considerable achievements in the different scopes of agricultural	Factor conditions for agriculture, livestock and fisheries in Libya – other than the existence of basic infrastructure	Agriculture sector is insufficient comparing to countries in the region. Efficiency of marine sector including	The growth of the sector is very low, and the production is insignificant  The fish farming sector efficiency is very low	all reports mentioned to the very bad performance and inefficiency of the sector Fish production from fish farming is also miserable
Achievement of development targets	development of oil sectors is diversifying the economy beyond the oil and gas sector	Agriculture sector has secured a significant attention within the national strategy of constructing a productive society.	The development of agriculture is to realize self-sufficiency and diversify economy and realize social development in rural areas.	Government policy has aimed for self-sufficiency in food. As a result, the sector has received generous subsidies	Agricultural strategy of 2000s: it may be seen on reviewing previous agriculture policies. According to the ecological conditions Libya will not be agricultural state's products	The state policy in the field of price policy of marketing as well as in ownership programs, where state number of projects has been privatized including fish	government policies still interest in developing the sector and gave it significant priority but with some change regarding to operate the sector by giving more role to the private sector
Drivers of government policies:							
The role of oil	High and increased dependence on oil revenues as GDP growth is driven exclusively by oil prices... economy is dominated by oil sector	because of the radical decline of oil world prices, the plans of 1970s and 1980s failed to achieve its targets  Allocation for agriculture sector reached 20% of the total investment in period (1970-2000)	Libya's economy is heavily dependent on revenue from natural resources.  The oil revenue is the fund resource of agricultural sector  Availability of significant revenues	oil sector constitutes the most developed portion of the energy cluster.  For most of the 1970s and the 1980s, the government invested heavily in the sector	Oil and gas sector was the main source of fund of all agricultural government projects.  The use of oil to fund agriculture sector was insufficient  Oil revenues in the key element of economy	Allocation to the sector of marine resources and aquaculture from (1970-2000) is considered the lowest, it accounted at 0.4% of the total budget of the transition, this budget defied the total expenditure in productive sectors of the economy which is	Oil sector was and still the dominant sector of the economy  Oil has critical role to fund the sector... Some reports mentioned to that oil revenues allow implementing policies to continue and support the inefficient exploit of government subsidies...

Source: raw data analysis

### 3.6.1.3. Analysing qualitative data from the research schedule (structured interviews)

The research first prepared the structured interviews for analysis through translating them into English and transferring the information from paper format to Microsoft Word format. This allowed her to code the text and the phrases using the same technique of colour highlighting. The coded texts from the structured interviews were also

categorized and then qualified by highlighting the related data in which the themes were presented. Despite the existence of some quantitative data, the researcher focused only on qualitative data as related to the examined themes. See Figure (3.11) below:

**Figure (3.11) Analysis of the raw data from the structured interviews by listing according to text themes and highlighting in different colours:**

Themes	Farm(1)	Farm(2)	Farm(3)	Farm(4)	Farm(5)
Finance problems	<p>Facing difficulties to obtain loans... <b>Interest value is high.</b></p> <p><b>Waiting for loan of (100,000) from 20 07.</b> Most of the problems are related to the complicated administrative process.</p> <p><b>farm is suffering from lack of stability in production due to financing difficulties.</b></p> <p><b>The treating people inequality. I mean some people access to loans easily, but others not.</b> Depend on personal relationships.</p> <p>Banking system is not sufficient, and its policies regarding to support farmers needs to revise.</p> <p>Fish farming needs big investment, so without financing support it would be difficult to establish and manage a farm effectively.</p>	<p>Facing difficulties to obtain loans... <b>Interest value is high, it takes a long time to get it.</b></p> <p>I think the system of agriculture banks should be changed, because it is very discouraging.</p> <p>complicated processes.</p> <p>a sting for too much guarantees.</p> <p>the lack of loans facilities will make it harder and thus make investors reluctant to engage in activities, this will indeed lead to hinder the development of the sector</p>	<p>We do not have any troubles in regarding to the financing issues because government is fund the farm.</p> <p>But my personal opinion about the financing institutions, especially <b>agricultural bank</b>, are that the services provided by these bank did not developed along with the developing of the farmers needs and requirements.</p> <p><b>Banks are still dealing with the policies of the sixties and seventies, the world is changing and developing around us, the banks must evolve accordingly.</b></p>	<p>Facing difficulties to obtain loans... <b>Interest value is high.</b></p> <p><b>The banks are asked too many kind guarantees, which not always available a very complicated administrative procedures.</b></p> <p><b>Big access to loans make the work in marine fish farming more stable and encourage the current workers to continue in this type of business, but this is not the case in Libya.</b></p>	<p>Facing difficulties to obtain loans... <b>Interest value is high.</b></p> <p>Complicated administrative processes.</p> <p>Insufficient credit system especially from agricultural banks.</p> <p>Corruption because <b>some people in the government take bribe from investors to do facilitate the procedures.</b></p> <p>Without external fund resources we can't continue in such activity, especially in the first years.</p>
Technical problems	<p>the source of problems in production operations are <b>Fodders, fingerling, disease</b></p> <p><b>natural causes, lack of stability in production is due financing difficulties, and lack of technical support, difficulties to access to fingerling, expensive cost of fodders</b></p>	<p>the source of problems in production operations are <b>Fodders, fingerling, lack of skilled technical workers</b></p> <p>high production cost... most of cost elements are <b>Fodders and fingerlings...</b></p>	<p>the source of problems in production operations are <b>disease, fodders lack of skilled technical workers, water quality and suitability...</b></p> <p>Lack of stability in production is due to <b>lack of skilled</b></p>	<p>the source of problems in production operations are <b>Fodders, disease</b></p> <p>high production cost... most of cost elements are <b>Fodders and</b></p>	<p>the source of problems in production operations are <b>Fodders, fingerling.</b></p> <p>lack of stability in production is due to the difficulties to obtain <b>fodders and fingerling</b></p>

Source: raw data analysis from the structured interview

**Figure 3.12. Presentation of findings from pulling together analysed data from the three resources (semi-structured, structured and documents):**

2. Drivers of government policies:	
2.1. Political ideologies:	
Political ideologies	
Interviews	
Official A	<p>There are general ideologies higher than the specific policies of agricultural sector... it is like the essential reference should not go beyond... The problem with some of these ideologies that they are sometimes inappropriate, or its costs are higher than the returns... We just follow the directions from people because the decisions are in the hand of people and are made through the People's Congresses... We failed to meet this target because in fact these are unattained targets... Change in the mechanism of the development plans in the country after 1977 after the Proclamation of the People Power, has changed the mechanism for the exercise of power to be turned the task of planning just like that of the legislature, to the People Base that sets the essentials and priorities on projects and goals, after which the technical staff (planners) to converted these essentials and priorities to a practical plans.</p> <p>I have limited power... I can give my comments or suggestions to the general council of planning but I cannot force them to adopt it... Ministry of agriculture is not alone to make decisions... There are complicated issues in this regard which are impossible to explain.</p>
Official B	<p>We are here just to apply the structures we receive from higher powerful, we have limited power especially in the area of policies and planning</p>
Academic A	<p>Look at the Green Book and you can recognize why the government has reduce to role of private sector... There is no economic consideration in the case of developing agriculture sector including the marine fish farming in such inefficient way... Since 1977 planners and policy makers have adopted this statement as a base from which the agricultural policies and plans are formed. "No freedom for a country bring food from behind the sea" (Green Book)</p> <p>It is ideological and political ambitions and has no relevance to the economy that leads the government to keep spending money on the sector in this way... Projects of MMR is for a political purposes rather than economical, it is the best example</p>

5 (5) Data Analysis	
A. Elements Obstruct Development process (Marine fish farming sector):	
	Corruption
Interview	
Official A	Especially within the circle of people who not aware of God, and they allow themselves to steal the public money. Number of farmers who have taken loans for the purpose of establishing fish farms, and they then used it for different purposes. I am not denying the fact that any there is less of corruption in the government administrative, and thus I believe there would be a corruption in any units or institutions belonged to the public sector.
Official B	Most of people work in marine fish farming in the private sector is rich or related in some way to government. Non agricultural exploitation of loans could highly happen, especially within the circle of corruption amongst the administrative levels of the public sector. Corruption is everywhere, but banking system is less corrupted. But amongst the public sector administrative corruption become common phenomena in the developing world including Libya, I can't administration have recognized any forms of corruption... in the government at different and I have dealt with many corrupted managers and directors.
Academic A	The corruption in exploiting the money allocation decreases the encouragement of farmers, as they do not feel that they are receiving enough support from the government. Corrupted people exploit these funds in the non agricultural purposes... Corruption is behind the delay in the development targeted in the planning program. Problems due the subsequent phenomena of corruption such as bribery in the public sector. Only people who have a suspicious relationship of people in the government or who pay too much of money (which we called bribe) to access to the investment opportunities... if that money has been given to another country that have a high level of management resources and lower level of corruption I think they would have a very improved agriculture practice. Corruption is also exist... The main reason of losing money is corruption... Part of allocation is stolen through the different techniques of corruption... Corruption is also exist if one would talk about the problems of the development in a country.
Academic B	There is dominance of some corrupt people in the military and from Qaddafi's family over some agricultural projects. Agricultural plan in the developed is... to achieve personal benefit... From military and police side, but the institutions behind this procedure were not properly based on an economic decision. It was a hasty and deliberate political decision for the purpose to take a personal advantage of some people. Corruption strongly exists... Money spent on fake projects... The insufficient use of allocation for the sector due to corruption.
Expert A	Many farms have been started and did not operated or even exist on the ground... I suspect that, a pure speculation, people apply for loans to establish farms and then they use the money for something else... There is a considerable level of corruption in the government administration.
Expert B	There is something missing... marine fish farming should be developed ten years ago according to the announced allocations to the sector. But to be honest nobody knows where this money has gone! Lack of monitoring with the spread of bureaucracy in the public sector allows the increase of corruption, which, is the only explanation of the gap between the government allocation for development plans, and the actual development implications... There are lack of rational awareness of governors who allow such decision to happen.
Government document	
Libya at the dawn of new era. (2006)	Control of corruption relates to 160 countries (46%)... bank employees take bribes... cost of corruption and favoritism by government... low income and lack of accountability have led to increase of corruption.

farm 1	<p>Facing difficulties to obtain loans... Interest value is high...</p> <p>Waiting for loan of (180.000) from 2007. Most of the problems are related to the complicated administrative process,</p> <p>Farm is suffering from lack of stability in production due to financing difficulties, High production cost... most of cost elements are Fodders and fingerlings...</p> <p>Employees in banks treating people unequally, I mean some people access to loans easily, but others not. Depend on personal relationships.</p> <p>Banking system is not sufficient. And its policies regarding to support farmers needs to revise. Fish farming needs big investment, so with out financing support it would be difficult to establish and manage a farm effectively,</p>
farm 2	<p>Facing difficulties to obtain loans... Interest value is high. it takes a long time to get it... I think the system of agriculture banks should be changed, because it is very discouraging, complicated processes,</p> <p>Asking for too much guarantees... the lack of loans facilities will make it harder and thus make investors reluctant to engage in activity, this will indeed lead to hinder the development of the sector</p> <p>High production cost... most of cost elements are Fodders and fingerlings...</p>

Source: raw data analysis

In the third step, the researcher pulled together the three data resources (semi-structured interviews, structured interviews and documents), through copying the highlighted phrases and texts from raw data files (drafts of coded data) and pasting them on another Microsoft Word file to present each theme separately. Thus, on each sheet, there was a list of data resources (interviewees and documents) for each theme (see examples in figure 3.12). The researcher then pulled out the main findings and contextualized these to compare them to the themes presented in the conceptual framework. This process will be explained in the next Chapters (4 and 5).

### 3. 7. Limitations of the Research

Marshall and Rossman (1999, p 42) pointed out that "there are no perfect research designs..... it's a trade-off". A major problem which researchers often face is the

difficulty of collecting appropriate data. For example, whilst people may be prepared to participate, there might be cultural reasons that make them fear giving an honest response, and consequently they provide information which they feel safe in giving. Additionally, the respondents may give answers, especially in an interview situation, which they think the researcher wants, regardless of whether or not they are a reflection of the truth. However, in this research, the main limitations could be summarized as follows:

- Difficulties in accessing some key participants, especially those who were in the government. However, the researcher relied heavily on personal connections and social relationships to obtain access and to meet the targeted people in the agriculture and marine fish farming sector.
- Difficulties in accessing the failed marine fish farms, although the researcher managed to access raw data about them to enhance the validity and credibility of the research. She obtained some annual reports about these farms (annual surveys 2004-2009). Like most Third World countries, Libya is a developing country and it did not possess a significant number of information sources. Also, it was difficult to access government documents due to the poor quality and credibility of the information system in Libya.
- Time management was difficult given that the researcher was studying in the UK, while collecting data from Libya, where time was judged according to different principles. Cultural differences mean that in Libya people would not generally approach interviews and completion of structured interviews with the same understanding of urgency as people in the UK.

### **3. 8.Ethical Considerations**

This research was undertaken in accordance with a set of common standards of good practice. These were derived from the ESRC Research Ethics Framework, and they represent the ethical guiding principles used at Sheffield Hallam University (Sheffield Hallam University Research Ethics Policies and procedures 2009). According to these principles, all researches must conform to:

- **Beneficence,**
- **Non-maleficance**
- **Integrity**
- **Informed consent**
- **Anonymity/confidentiality**
- **Impartiality**

In this research, all participants were informed about the expected benefits of the research. Farmers, officials, academics and experts were expected to be aware of the development of the agriculture sector in general and of marine fish farming in particular. This was due to the national awareness of the benefit to Libyan society in general.

Another ethical principle that should be considered in line with beneficence is non-maleficance. Risk, harm and hazards, including emotional and mental distress, and possible damage to financial and social standards are aspects that should be avoided in research (Hammersley and Atkinson, 2007) (Crang and Cook, 2007). The participants were not exploited, harmed or put at risk. They were not in any way deceived or misled in terms of who the researcher was or what the researcher was setting out to achieve (Bryman, 2001).

On the other hand, the researcher was identified as an academic researcher gathering data for a PhD study; these facts were revealed to all participants. The researcher introduced the research, and the importance of the interviews as part of the requirements for the study, clarifying that the research was only carried out for scientific purposes, that the interview would not take much time, that information would be used only for scientific purposes, and that it would be highly confidential. Prior to any research investigation, Hammersley and Atkinson (2007) stated the need for obtaining approval from the research setting and the research subjects. All participants in this study had the choice of participating or declining to participate in this research.

The participants were informed about the anonymity and confidentiality of the information delivered. They were assured that all the gathered data would remain secure, that the information provided would remain confidential, that participants would remain anonymous and that they were free to withdraw from the research at any time, with no clarification required (Kenyon and Wood, 2009). MacLagan (2003) argued that

confidentiality is required during data collection; the researcher is required to protect confidentiality while writing and publishing the project. The names of participants are not to be published: they should only be known to the researcher. The participants should not be named in the research; instead, they should be referred to by general labels and codes. To ensure anonymity and confidentiality while reporting the data, the participants were referred to as follows:

- Officials (A and B)
- Experts (A and B)
- Academics (A and B)
- Farmers (1, 2, 3, 4 and 5)

All these ethical considerations were respected and taken into account while conducting this research; all the information obtained from the interviewees was treated confidentially so that no interviewee would be anxious or fearful to participate in the interviews. At the same time, all the interview questions clearly explained to all participants, who had their queries answered and opinions respected.

### **3. 9. Conclusion**

This chapter, being concerned with the research methodology applied to the investigation, reintroduced the research aim and the question established in Chapter One. It highlighted the overall research design that was implemented and proceeded to address the question of what particular research methodology was the most appropriate to meet the stated objective. It presented the philosophical and theoretical principles. The researcher adopted a critical attitude, criticizing the developmental status in Libya and pointing out its incapability to develop a vital sector such as the marine fish farming in the context of the overall failure of the agriculture sector to achieve the designated development targets. The chapter also introduced the methodology followed in the case study; it attempted to apply the conceptual framework to the case of marine fish farming in order to examine the propositions presented in the framework.

It then considered the empirical work, including data collection and analysis, and explored the appropriateness of interviewing, structured interview and documents as

instruments for extracting data from key personnel in the agriculture sector and from marine fish farmers. Having decided to adopt these methods in order to undertake the case study, the researcher provided justification for each. Finally, the chapter reported how the research was actually conducted and how the data were analysed. The researcher employed thematic analysis methods as they were more appropriate for handling the raw data in order to examine the themes of the conceptual framework.

# **Chapter Four: Case Study on Marine Aquaculture;**

## **Analysis and Results**

### **4.0. Introduction**

This chapter provides an analysis of the case study on marine fish farming in Libya based on the key findings from the data analysis, with a view to examining the research question, "Why marine fish farming sector has failed?" It also explores the wider issue of the research, that of the development of the Libyan agriculture sector.

The chapter initially presents the results on the performance of the marine fish farms. The findings confirm that the weak performance and deterioration of the sector are a consequence of mismanagement, corruption, lack of skills, and weak marketing and financing systems, among other problems. The research also provides a more recent insight into the actual state of the marine fish farming industry in Libya. The work is of particular value as it examines the current efficiency and productiveness of this sector, which has not been effectively examined in existing publications. There is a notable lack of references in terms of examining the failure of agricultural policies in the field of marine fish farming in Libya.

### **4. 1.Description of Marine Fish Farm Operations**

In this section the researcher provides an analysis of the business operations of the farms surveyed. This information was gathered from the structured interviews and government reports. The findings from analysis were then examined in the context of marine fish farming sector as a whole, from all data resources. These will be presented in section (4.2.).

In order to ensure rigour within the research, the researcher investigated the state of the marine fish farms on the ground, through interviewing the farmers, and referring to unpublished government reports, and this enabled the researcher to draw a more realistic picture of the status of the functional fish farms and the abandoned farms. The objective

was to identify the problems the farmers faced, and then to link them to the problems facing the marine fish farming sector in particular and the agricultural sector in general. Thus, the researcher considered it important to shed light on the internal environment that reflected the operational status of the marine fish farms, and on the external environment that reflected the marine fish farming sector as one of Libya's economic sectors. This, it was thought would reflect a vital part of the whole picture of the obstacles that led to the failure of the development of fish farming in particular and hindered the development of agriculture in general. The figure (4.1) below shows how the researcher analysed the data collected from structured interviews and used them to compile a description of marine fish farms operating in the sector.

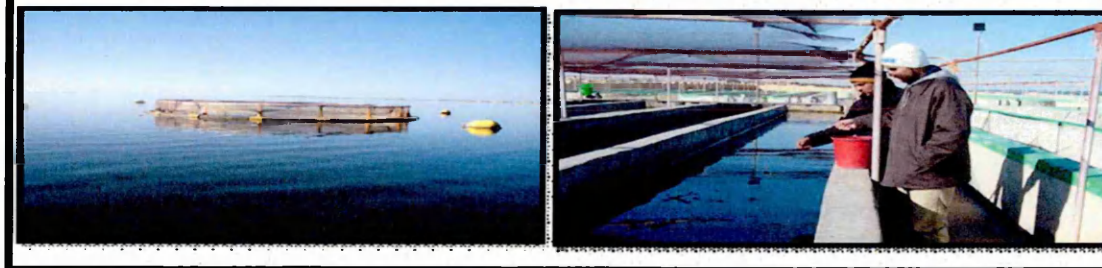
**Figure (4.1) Examples of data analysis from structured interviews:**

<b>Analysis of structured interviews and site visit (step 2):</b>					
Description of fish farm activity	Farm (1)	farm (2)	farm (3)	farm (4)	farm (5)
Date of farm establishment	1988	1999	2004	1997	2004
Type of ownership (from list)	Private (individual) Note: Public sector from 1988-2005.	Private (Joint Stock company)	Public sector	Private (individual) - rent from public sector	Private (Joint Stock company)
Total number of workers	3	6	28	10	7
Salary (LD)	minimum 150 maximum 350	Minimum 500 maximum 600	Minimum 250 maximum 500	Minimum 250 maximum 700	Minimum 300 maximum 750
Type of energy used (from list)	Electricity petrol	Electricity petrol	Electricity petrol	Electricity petrol	Electricity petrol
Water resource From list	Sea water	Sea water	Sea water Groundwater Treated waters	Sea water Ground water	Sea water
Type of farm activity From list	Breeding marine fish	Breeding marine fish	Breeding and hatchery marine fish	Breeding and hatchery marine fish	Breeding marine fish
Farming system From list	open system (floating cages)	open system (floating cages) and Submerged cages (farm ocean)	close system (20 concrete and 54 fiber glass tanks) semi closed system Recently ( 2 earthen ponds) Open systems (15 floating cages).	Breeding fish in intensive type using close and semi close systems including 6 concrete tanks and 10 fiberglass tanks and 4 earthen ponds	4 Fiber glass, 2 concrete tanks and 5 earthen ponds

**Figure (4) modern technology (Water desalination, Oxygen generator, Electric generation and others):**



**Figure (5) farming system: (tanks, and cages):**



Source: raw data analysis

#### **4.1 .1 Ain Al-Ghazala (coded farm 1)**

The farm was established in 1988; it was under the government administration (the Ministry of Agriculture, Animal and Sea wealth), but in 2005 the farm was privatized and is now owned by a local investor. Despite the millions that have been spent on the farm's establishment and operations, and despite the high natural potential of that site, the farm's capacity and productivity was very low.

The main activity on this farm is breeding marine fish. The farm lacks the required facilities, and there is clear neglect of farm establishments. Some of the - hatchery equipment has broken down, whilst some has been completely destroyed. There are some buildings that look unsuitable for habitation by workers, or for administration purposes, but most of them are not used. The fodder and equipment storages have been destroyed as well. There are no marketing facilities or any other services. Some broken-down cages are visible on the coast. The only things that work on the farm are one circular cage floating in the water and very old boats. There are 3 workers: one Libyan and two Egyptians. The farmer faces difficulties in obtaining loans. He has been waiting for a loan of (180.000) since 2007. Most of the problems are related to the complicated administrative process and the different treatment of customers in the banking system.

The farm suffers from a lack of stability in production due to the financing difficulties, lack of technical support, difficulties in accessing fingerling, the high cost of fodder, and disease. The cost of production is very high; the most costly elements are fodder and fingerling. No marketing facilities are available on the farm. Some of the products are marketed inside Libya but most are exported, mainly to Egypt. There is no stability in the local markets. The farm faces problems in the marketing process, in storage and transportation. There is a lack of infrastructure in the rural areas, lack of developed facilities and service system, around the farm. Overall, the farm was struggling, working with very low productivity in 2009. In 2010, the farm went out of operation.

#### **4.1 .2 Rass Al-Hilal (coded farm 2)**

This farm was established in 1999. The main activity of this farm is breeding marine fish. It is owned and directed by a private joint stock company (Rass Al- Hilal Company of Marine Investments, which indirectly belongs to Saif al Islam Qaddafi). The farm is

very well-equipped, with two self-feed floating cages (Farm Ocean), whose capacity exceeds 4500 cubic meters. There are also 4 circular floating cages with a capacity of 4000 cubic meters and 2 with 500 cubic meters. Buildings on the land are limited to fodder storage and small houses for the workers and the security staff. There are also other facilities such as boats and cars.

There are 6 workers, some of whom are specialists in aquaculture while the others are ordinary workers. All are Libyans. The farm is characterized by high productivity that exceeds 250-270 per season, which is the highest among Libya's marine farms. The farm sometimes faces problems with its production operations, mainly due to delayed delivery of fodder and fingerling and the lack of skilled technical workers.

Production is stable and although the cost of production is high, the profit is high as well. The most costly elements are fodder and fingerling. The farm sometimes faces financing difficulties due to delays in obtaining loans, and the high interest rates. It also takes a long time to get loans. The farmer believes that there is no stability in the local markets. The size of the local market is very small and prices are not stable, although they are much lower than international prices. Most of the required marketing facilities are available on the farm. All production is marketed outside Libya, mainly in the European markets. The farm does not face any problems in the marketing process. In general, the farm is operating very well and is the best performing of the existing marine fish farms in the private sector (see appendix 6).

#### **4.1 .3 Farwa Farm (coded farm 3)**

This farm was only established in 2004, despite the fact that the planners have been planning these projects since 1990. The main activity of this farm is to breed and hatch marine fish. It covers an area about 0.5 hectares. It was under the administration of a Libyan-French Marine Aquaculture Company; however, this administrative body has not been running the farm since 2006 when the role was transferred to the National Project of Development of Aquaculture. The farm is very well equipped as evident from the pictures (see Appendix 6. The main facilities are:

- 20 concrete tanks
- 54 fibre glass tanks
- 2 earth ponds

- 15 floating cages
- Several buildings
- high technological hatchery
- Cooling complex,
- Ice producing equipment
- Laboratory
- Other supporting facilities (transportation storage for cars and boats)

There are 28 workers, all of them are Libyans, but the manager of the farm clarified that most of them lacked the required skills; there is a lack of training programs for farmers. He also mentioned some problems in the production operations, such as disease, cost of fodder, lack of skilled technical workers, and poor water quality. The lack of stability in production is due to the shortage of skilled workers, wages and benefits that encourage workers to increase their productivity. The cost of production is high; the most costly elements are fodder and the spare parts for equipment, but the farm has not yet faced any financial difficulties because the government is directly funding the farm operations.

All the required marketing facilities are available on the farm. There is also stability in the local markets. Though generally production is insufficient, there is sometimes a problem of accumulation of products. The manager stressed that this is due to the lack of coordination and planning for future marketing. The farm is producing without any marketing plans, but local markets generally receive the farm products due to the high demand and low supply. The government's involvement in the marketing process has reduced its efficiency, because it does not take market mechanisms into account. Governmental officials get involved in marketing the farm's products without any official authority, even sometimes without letting others know.

There is a lack of infrastructure in the rural area where the farm was established. There is also a lack of developed facilities and service systems in the area around the farm. The nearest health care centre is about 20 kilometres from the farm. There is also lack of development programs for the local communities in the area around the farm. In general, the farm is characterized by high productivity. It produces sea bass, sea bream fish and fingerlings. The production is sold locally.

#### **4.1 .4 Elsibkha Farm (coded farm 4)**

This marine fish farm was established in 1997. It is directed by a private company which rented the land from the government, and is considered a small scale business. The main activity is the breeding and hatchery of marine fish (sea bass and sea bream) together with some secondary production of tilapia. There are 10 workers on the farm, three of whom are viewed as skilled (one Libyan and two Egyptians, specialists in aquaculture), but the rest are ordinary Egyptian workers. The farm is properly equipped; there are 2 computers on the farm but no internet service. The main facilities inside the farm are:

- Hatchery (partly operating)
- Cooling complex (not completely established)
- Ice producing machine
- 10 Fibreglass tanks (only 2 in operation, to hatch Tilapia)
- 6 concrete tanks
- 4 earth ponds (only 1 in operation)
- Laboratory
- A number of buildings.

The owner depends on his personal savings to finance the projects, also on loans from the non-agriculture banks, and he faces difficulties in obtaining loans. Production is usually stable, fluctuating between 50-70 tons per season, although there are sometimes problems related to getting fodder on time, due to the complicated procedures imposed on importing it. Operation costs are very high, especially in terms of fodder. In the past, the farm has had difficulties with the supply of fingerling as well, whether due to the high cost or due the complicated importation procedures, but this problem has receded since the hatchery for tilapia began operating, although the farm still faces problems with sea bass and sea bream fingerling.

The farm sells its products inside Libya, to the local markets. Despite the high costs, the farm is able to procure good levels of profits. The local markets are considered undeveloped and small compared to other countries, but due to the lack of supply and the high demand for fish, the farmer does not have any problems in marketing his products. Sometimes, the farmer faces problems regarding the availability of storage and

transportation in the high production seasons. In general, the farm operates well, but its productivity is much lower compared to the previous farm at Farwa.

#### **4.1 .5 Benewiada (coded farm 5)**

This marine fish farm was established in 2004 and is under private ownership. It is considered to be a small scale business. The main activity is breeding marine fish (sea bass and sea bream), along with some secondary production of mullet. There are five Egyptian workers on the farm. The farm lacks certain facilities; most of them run at low capacity. The main facilities inside the farm are:

- Buildings for workers and storage
- 5 earth ponds (only three are used).
- A number of fibre glass tanks (not used yet)
- A number of concrete tanks (not used yet)

The owner depends on his personal savings and on loans from non-agriculture banks to finance the projects; in fact, he is facing difficulties in obtaining the loans. Production is unstable but it amounts 10 to 15 tons in a season. In some seasons, the farm does not produce anything. The main problems are due to the difficulties in obtaining fodder and fingerling on time. Also, natural factors cause fluctuations in the mortality percentage affecting the fish yield. The operation cost is very high; the most costly elements are fodder and fingerling.

The farm sells most of its products inside Libya, whilst the rest are sold abroad, mainly in the Tunisian markets. Despite the high costs, the profits are not too low. The local markets are considered undeveloped and small compared to the fish market in Tunis, for example, but they can still take most of the farm products due to the high demand for fish. The lack of marketing facilities, including transportation, is one of the farmer's sources of concern, also the irresponsibility of intermediaries; more often than not, they fail to comply with the contract conditions or to complete the sale deal process. In general, the farm's productivity is much lower than that of the two previous farms.

In conclusion, the first annual survey conducted by MBRC, in 2004, identified the total number of farms as 17; this number had declined, according to the latest survey, to five

marine fish farms in 2009. Of these five, two are successful farms, and are well-equipped, large scale businesses. They also depend on Libyan workers and technicians. One of them was originally under foreign investment and then was transferred to public sector ownership. It is very modern farm, recently built, but it is facing managerial, technical and marketing problems. The other farm is under the private sector, but this private ownership has had an indirect relationship with the former ruling elite (belongs to Saif Al- Islam Qaddafi), and the farm faces some technical problems. Of the other three farms, two are still operating but with low productivity, one stopped operating during the year following the first visit. These three farms belong to ordinary private Libyan citizens and they depend mainly on foreign workers and likewise face financing, marketing and technical problems (see pictures in appendix 6).

#### **4. 2. Analyses of Status of Marine Fish Farms in Libya (2010)**

By drawing together the findings presented in section (4.1), the analyses of interviews conducted with officials, academic and experts, and also the analyses of documents, the researcher in this section provides an analysis of the current situation of marine fish farming in Libya, aiming to reveal why Libya has failed to develop marine fish farming; failure that is evident from the continual dwindling in the number of the operating farms, and in the level of efficiency or performance. As has been explained in the methodology chapter the researcher followed the thematic analysis technique for analysis of the data from different resources. Figure (4.2) below presents examples of the analysis of the current status of marine fish farms in Libya.

According to the government report on Development Conducted in the Marine Fishery and Fish Farming Sector (2008), the number of operating fish farms was 174, while other reports presented by the Ministry of Agriculture recorded a higher number; these reports also failed to clarify how many were marine fish farms and how many were fresh water fish farms (MBRC 2007). Basically, the experts and the FAO reports on aquaculture pointed out that the potential for developing marine fish farming in Libya is much higher than that for developing fresh water fish farms, due to the lack of fresh water resources in Libya. So the focus of the government planners on marine aquaculture rather than fresh water aquaculture is understandable. The non-

governmental document on Planning for Aquaculture Development in Libya (1996) stated that:

*"The potential for the development of freshwater fish production either on a commercial or subsistence scale is obviously extremely limited due to the prevailing geo-climatic conditions. Any realistic consideration of aquaculture in the Libyan context must thus be oriented primarily towards marine operations (marine-culture) based along the country's almost 2000 km stretch of Mediterranean shoreline".*

**Figure (4.2) Analysis of the status of marine fish farms in Libya:**

	The current state of marine fish farming sector efficiency and performance
Interviews	
Official A	Libya is far in behind in this field.... Production is still very limited, but however in 2008 the total production reached 300 tons from a few number of farms ... economical production from marine fish farming is still inconsiderable.
Academic A	The sector is undeveloped, the productivity is low, the efficiency is low, the out puts is low.... Its practices are very limited, and the fish production is very low. Sector is showing lower performance... Sector is lagging behind ... comparing to the other economic sectors. Marine fish farming is the worst. Fish production from marine aquaculture is not recognized.... Its position among other sectors, it located in the very late order. bad performance of marine aquaculture .... practices of the marine fish farming in Libya are truly failing sector
Expert B	There is a decrease of fish farms although other new farms have been established. ... There is low growth in the sector's projects. The sector still, economically, undeveloped. The clear evidence of that is the continual failure in many fish farming projects.

Non government documents	
FAO's achievement in Libya 2011	weak performance of fishery and aquaculture
National medium term investment program	poor performance of the fishery sectors
planning for aquaculture development in Libya	Although a start-up program of aquaculture has existed in one form or another since around the mid-1970s... but production still insignificant
marine wealth sector (development planning overview (Libya)	Aquaculture sector productivity is low if comparing to other Mediterranean countries
Government documents	
Evaluation of agricultural policies (1970-2000	very bad performance of marine fish farming .... Low contribution to the national economy ...
report of agricultural development (1970-2005)	Efficiency of marine sector including fish farming is very low .... Fish production from fish farming is inconsiderable
development conducted in marine fishery and fish farming sector 2008	The growth of the sector is very low, and the production is insignificant.... The fish farming sector efficiency is very low. ... Libya is the least productive in the aquaculture sector between the Mediterranean countries despite the availability of potential natural shores in Libya qualify better practices of marine aquaculture than many other Mediterranean countries.... From 704 farms there are only 13 fish farms are exist
findings	- Marine fish farming is inconsiderable agricultural practices. - Bad performance of marine aquaculture comparing to other agricultural scopes - Low efficiency, low growth rates. - Marine fish farming is economically undeveloped. The clear evidence of that is the continual failure in many fish farming projects, and gradual reduce in the number of operating fish farms.

Source: raw data analysis

Despite the existence of natural potential for developing the fish farming industry the sector is still undeveloped, with the findings showing clear evidence of the deterioration

of marine fish farming. The report on Planning for Aquaculture Development in Libya (1996) also mentioned the weak performance of the sector, stating that:

*"Although a start-up program of aquaculture has existed in one form or another since around the mid-1970s...but production still insignificant".*

The interviewees stressed the same point; for example, official A stated that:

*"Libya is far in behind in this field,...Production is still very limited, but however in 2008 the total production reached 300 tons from a few number of farms....economical production from marine fish farming is still inconsiderable".*

Also the report on Agricultural Development (1970-2005) stated that:

*"Fish production from fish farming is inconsiderable".*

The governmental report on Development Conducted in the Marine Fishery and Fish Farming Sector (2008) demonstrated the difficulties experienced by the marine fish farming sector, with the report stating that:

*" Libya has the least productive aquaculture sector among the Mediterranean countries despite the availability of potential natural shores in Libya offering better practices of marine aquaculture than many other Mediterranean countries ... The growth of the sector is very low, and the production is insignificant.... fish farming sector efficiency is very low".*

Also expert B stated that:

*"There is a decrease of fish farms although other new farms have been established. ... There is low growth in the sector's projects. The sector is still economically, undeveloped. The clear evidence of that is the continual failure in many fish farming projects".*

Academic A also clarified that the marine fish farming sector is the lowest growth sector among other agriculture sectors, he stated that:

*"The sector is undeveloped, the productivity is low, the efficiency is low, the output is low....Its practices are very limited, and the fish production is very low. Sector is*

*showing lower performance... Sector is lagging behind ...comparing to the other economic sectors. Marine fish farming is the worst. Fish production from marine aquaculture is not recognized....Its position among other sectors, it is located very low in the order. Bad performance of marine aquaculture .... Practices of marine fish farming in Libya are truly failing sector".*

The analysis of the annual reports<sup>31</sup>, which started in 2004 to follow up fish farms across Libya, identified 17 existing marine fish farms, of which only 10 were operating in the first year of the survey (2004). By 2009, this number had declined to only 5 farms. This actually can be seen as an indicator of the struggling situation of the marine fish farming sector in Libya.

In conclusion, the state of marine fish farming is currently deteriorating. It is notable from the different data resources that fish farming is characterized by bad performance, low efficiency and low growth rates. As evidenced from the data analysis and quotes stated above, marine fish farming is economically undeveloped and has low productivity. The clear evidence of that is the continual failure of many fish farming projects and gradual reduction in the number of operating fish farms, as well the low level of fish production. These results derive from government and non-government reports and also from the opinions of the interviewees, established on a foundation of research and statistics in the field of fish and general agricultural production.

### **4. 3. Testing the Conceptual Framework**

#### **4.3.1 Drivers of Government Policies toward Agriculture Development**

In chapter 2, the researcher identified some of the key drivers of government policies that have had an impact on the development of the agricultural sector and also identified some of the key barriers that have hindered the development process. These drivers and barriers were presented in the conceptual framework (see Figure 2.6). The three key drivers have been defined as the political ideologies of Qaddafi, the availability of oil as a non-renewable source of revenue and the means of exploiting it, and the adoption of

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<sup>31</sup> Annual surveys of fish farms across Libya, conducted by the Marine Biology Research Centre, started in 2004.

planned economy criteria, which were under the domination of the public sector (see chapter 2). The case study highlights that the dominant role of oil in the economy has had a negative impact on the marine fish farming sector, which is dependent for funding on the state treasury, which means it derives from oil revenues. The results from the data analysis reflected strongly that with the availability of high revenues from oil the government continues to depend on this source of revenue to fund and operate the non-oil sectors, including fish farming. This heavy dependence has created a lack of the necessary will to transform the non-oil sectors into national income resources, with the oil feeding all the economy's sectors. The heavy dependence on oil revenues as the sole income resource, along with ignorance about achieving non-oil sector efficiency, reflects the existence of Dutch disease in Libya, as a major negative symptom of oil wealth. For example the nongovernmental document on Planning for Aquaculture Development in Libya, (1996) mentioned:

*"The development budget of the marine wealth and fishery allocations was from direct funding (the treasury)....With the availability of high revenues from oil there seems to be no compelling reason to encourage the widespread establishment of marine aquaculture facilities".*

Also, official A reinforced this point in stating that:

*"The availability of money allows the decision makers to not spend much time chasing behind the returns from the investments of this money ".*

This view is also supported by the experts; for example, expert B mentioned the importance of oil revenues in funding marine projects, but stated that the high dependence on oil in terms of ignoring the economic efficiency of these projects has led to the low productivity of marine sector. He stated that:

*"high dependency on oil returns contributes somehow to this situation ....Government in the times of austerity in the 1980s and 1990s has done much better on the sector, with most of the fish farms established in that period, as there were big plans to improve the non-oil sectors .... Availability of income from oil returns, I think, has made the government less concerned to improve or increase the productivity of this sector, I mean this has reduced the governmental enthusiasm to develop the sector ".*

Academia (B) also made clear reference to the phenomenon of Dutch Disease when he said:

*"Negative consequences are still present, as the country has experienced some of the symptoms of Dutch Disease; which are revealed as a result of the lack of practical attention to the development of the non-oil sectors, and to improving their economic and social productivity".*

The case study also reveals the existing role of planned economy in terms of its dominance over the public sector, and the negative aspects of centralization and bureaucracy in the formulation of agricultural development. For instance, expert B argued that the:

*"Private sector did not contribute to the development of marine fish farms, because of the dominant role of the public sector over private business for many decades ... There are constraints that are imposed on the activities of the private sector; they are limited to projects on a small scale .... with the beginning of the 21<sup>st</sup> century, the private sector started to show signs of improvement, though the number of projects is considered very small but their practices are promises for the success of many of them".*

Also, academic A stressed on dominant role of the public sector and the weak role of the private sector:

*"Government adopted the curriculum of Comprehensive Central Planning, the public sector still dominates the economy ... Government shrinking the role of the private sector, although it announced that it has allowed the private sector to contribute to the economy ...on other hand it imposes too much constraint ...interrupts the private sector's movement... Private sector up to date is still struggling".*

The government took some steps toward privatization but these have not always been successful. Some privatized businesses have failed. Official A mentioned Al-Gazala fish farm (farm coded 1) as a good example of the reduction of the role of the public sector and encouragement of the private sector, He stated that:

*"Privatized some farms such as Ain Al-Ghazala and we expected this farm to work better than before ... Privatizing was aiming mainly to secure such farms from destruction, and this just started recently so we expect the benefits would not come*

*second day anyway. But I believe private sector would do much better than us. Let us give them time to do so".*

The site visit to this farm is presented as an example of the failure of the sector. The farm started to operate in 1988 within the public sector. It was privatized just recently, according to evidence (MBRC, 2004; Field survey), the farm's capacity and productivity were very low. From the field survey it was also plain to see that the site was well situated and offered high natural potential, but had been very badly managed by the public sector. Despite the privatization, the farm continued to face financial difficulties because of its state of repair and the lack of financial support from government to local investors. Farmer (1) stated that:

*"Facing difficulties to obtain loans ... Interest value is high...without financing support it would be difficult to establish and manage a farm effectively".*

This view was also supported by expert B when he stated that:

*"Private sector is insignificant in Libya, too many constraints limit its work, although the Libyan government adopted some measures of reforming the sector and has become more open to the private sector and involving more local and international investments".*

On the other hand, the case study showed indications of the existence of political ideology influence on the agricultural development policies, in that most of the published and unpublished government reports on agriculture and fish farming investigated in this research were prefaced by statements from the *Green Book*, or by a synopsis of a speech by Qaddafi as the core motivation for developing the agriculture sector, mainly the ideology of realizing food self-sufficiency. In a report issued by the Institute of Sea Wealth in 1984 (Marine Fish Farming Projects), the reporter stated that:

*"For the implication of the Green Book statement 'No freedom for a nation that brings food from behind the sea,' the Libyan government, with the continual support from the revolution leader to realize food self-sufficiency, decided to adopt this project and to establish a number of fish farms and hatcheries in different areas of Libya to serve the nation's aims".*

Also the annual reports published by the MBRC referred to the leadership's interest in the sector of marine fish farming as a means of realizing the target of self-sufficiency. The report stated the:

*"Importance of fish farming in providing food to Libyan society in order to achieve independence from the international world and realize self-sufficiency".*

The value of marine fish farming as a means of increasing self-sufficiency was further supported by expert A when he stated that:

*"Motives for the interest expressed by the government in fish farming and the constant support despite the deterioration in the production efficiency might be because there are political influences in this.... Qaddafi mentioned the importance of fish farms to provide fish for local communities in the south of Libya, he emphasized development of the sector ... Saif Qaddafi has emphasized the sector as one of the main sectors targeted by the transformation measures... Saif Qaddafi has his own fish farm".*

In conclusion, plans and policies have been largely affected by the directions and the decisions of Qaddafi. The findings presented in sections 4.1. and 4.2 demonstrate that the sector is undeveloped and fish farming is struggling. Although the government has been investing in the marine farming sector since the 1970s, there is little tangible evidence of this investment and it has been suggested that the message delivered by the government with regard to the value of the sector has been largely propaganda.

The research concludes that the Libyan government is highly dependent upon oil revenues. These revenues allow unproductive policies to continue to support the inefficient exploitation of government subsidies. It has also led to a decrease in the enthusiasm of government for improving the marine fish farms, despite its declared interest in developing the sector. This sequence of events also reflects the negative impact of oil, as a non-renewable resource, on the non-oil economy. This study also concludes that the public sector still rules the economy, despite the government's attempts to expand the private sector, which have failed because the private sector has had limited support. The lack of government support, financial or otherwise, of the private sector has meant that farmers have struggled to operate in this market. The continued inefficiencies of the public sector have constrained the development of marine aquaculture.

The three elements presented by the conceptual framework: of oil's negative role, the political ideology influence, and the planned economy's dominant role in the economy, have been the key drivers of government policies on the development process marine fish farming. This can be generalized to agriculture as well as to the economic sectors; it thus gives better understanding of the nature of the Libyan economy with respect to development. "Propaganda" is more related to the political ideologies, which are far from being actually implemented. Likewise, it is employed to refer to the monopoly of the main non-renewable national resource, oil, by the political power elite and management by the public sector (see chapter 5).

#### **4.3.2 Elements Obstructing the Development Process**

The conceptual framework identified a number of barriers that hinder development towards the stated targets (see chapter 2). In this regard the case study illustrated a number of problems facing marine fish farming and causing it to lag behind. It pinpointed certain problems that led to the failure of the marine fish farms. It also mentioned other problems facing marine fish farming and all other agriculture sectors. In the following discussion the researcher presents the results from data analysis of the obstacles facing the development process.

The data analysis highlights that the obstacles hindering the development of the agriculture sector, as identified in the conceptual framework, are also hindering the development of marine fish farming. However, other problems have emerged, which include: Lack of rural development programs and their application; deficiencies in the maintenance of the existing infrastructure; inefficient role of the research centres and ineffective role of the agricultural advisory services. On the other hand, the data analysis demonstrated that there are other problems which are particular to the marine fish farming sector and cannot be generalized to the other agricultural sectors; these include technical problems, and lack of interest among the local community and their reluctance to engage in the activities of fishing and fish farming.

As has been explained above (4.2), there were contradictions and a lack of credibility in terms of statistics on the number of fish farms in Libya. The Ministry of Agriculture, in several reports, presented data that indicated that there were well over 100 marine fish

farms. However, the annual surveys 2004 conducted by MBRC identified that the number of fish farms on the ground was 17. In the current study the primary site visits showed that the number of fish farms had further declined to 4 by (2010). The researcher herself witnessed the failure of one of the marine fish farms that was among the targeted farms covered by the structured interviews (code no: 1). In 2009, the farm was still operating within one cage, and despite the technical and financial difficult conditions, the farmer expressed his desire to continue in this activity; meantime, he was fearful of failure in case he might not be able to get a loan that he had been applying for since 2007.

By 2010, the farm (1) was completely shut down. Unfortunately, the researcher was not able to interview the farmer again, despite her repeated attempts. When the researcher visited the farm for the second time, no one and nothing was left on the farm. It is assumed that the inability of the farmer to obtain the loan is the main reason. This could reflect the lack of a financial system, as presented by the framework. Farmer (1) stated that:

*"I am waiting for a loan of (180.000) from 2007. Most of the problems are related to the complicated administrative process.... yes I would like to continue operating my farm but I need financial support".*

It is important to point out that the failed farm (coded no.1) had been recently privatized, but results showed that the farm's capacity and productivity were very low despite the millions that were spent on the farm's establishment and operations, and the high natural potential available at that site. The failure of this farm also can be seen as an indicator of the existence of corruption, mismanagement and lack of monitoring because the farm was already in a difficult situation before its transfer to private ownership, whilst the farmer mentioned that many of the difficulties facing him in running the farm already existed before he owned it:

*"The farm lacks the required facilities ... farm establishments are neglected.... There are no marketing facilities or any other services".*

Also the annual surveys conducted by the MBRC identify barriers facing fish farming activity and hindering their development; for example, the annual report 2005 mentioned that:

*"Mismanagement of farms ..... Lack of monitoring responsible bodies.... Negligence of farms of public sector to destruction.... Multiple institutions and bodies responsible for state farms and overlapping of specialties ... Lack of coordination between responsible authorities.... Lack of maintenance procedures ... Gap between farms registered and farms on the ground...unfinished farms and stolen farms (budget allocated for farms).... lack of ports and lack of suitable transportation".*

It is important to mention that the research found that the characteristics of the farms that have survived are distinctive. Two of them, those owned by ordinary Libyans (farm 4 and 5), are hardly operating and are facing technical, financial and supply issues, as stated in section (4.1). Their current condition could reflect the struggles of the marine fish farming sector, and demonstrates the utter failure of the government to achieve the required development. However, it is hard to generalize the experiences of two successful examples (2 and 3), at least at the current time, due to the exceptional circumstances of these two farms. By shedding more light on the two successful marine fish farms of Farwa (public sector/ coded no. 3) and Ras Al Hilal (private sector/ coded no.2), the case study revealed the different characteristics of these two farms that make them exceptional in terms of the poor performance and low productivity of the marine fish farming sector as a whole (description with picture of site visit of the fish farms is provided in Appendix 6).

The analysis of the two successful farms and the failures not only shows the obstacles facing the development of the sector but also reveals the effects of the drivers presented in section (4.3.1) above. Regarding the public marine fish farm (code no: 3), this farm was recently established in 2004. Moreover, it was under the administration of the Libyan-French Marine Aquaculture Company, which means that external expertise was involved in establishing and running it, giving it the opportunity to operate more effectively than the marine fish farms run by local administration and experts.

Linking that to the framework regarding the problems facing the marine fish farming sector, including the lack of skills, mismanagement, corruption, etc., this farm, for two years, was operated under a different administrative branch of local public sector administration. This was changed in 2006, when the National Project for the Development of Aquaculture assumed responsibility for running the farm. This also raises the issue of the contradictions in government policies, as although by the early

2000s there was a trend towards privatization of the public sector, this nationalizing step seems to contradict that trend. Indeed, in the reviewed literature, Bruce (2008) and Alison (2010) stressed that despite the announced policies toward an open market economy, the Libyan economy is still controlled by the public sector. In 2009 the IMF report stated that private investments form only 2% of Libya's GDP, whilst the 2000s were characterized by on-going uncertainty because of the contradiction between socialist thoughts linked to Qaddafi's ideologies and unofficial capitalist notions deriving from Qaddafi's son.

It was evident that while financial investment had not been cut, despite the change in the farm's administration, performance had declined. Farmer (3) expressed this in the following terms:

*"When the administration shifted from the Libyan French company to be managed by the public sector the farm began to decline and the level of production fell compared to previous years .... The new administration does not respond efficiently to the needs of the farm".*

Generally, it is the researcher's belief that the four years from 2006 to 2010 cannot give objective indicators of the current efficiency of this farm (3) under the public sector. Despite the fact that the farm faces problems related to lack of coordination and planning for future marketing and to the accumulation of products, the farm is producing without any marketing plans, although the local markets generally take the farm products due to the high demand and low supply. Besides, government involvement in the marketing process has reduced its efficiency, because it does not take market mechanisms into account. Governmental officials with no official authority sometimes get involved in marketing the farm's products, for example, the manager farmer (3) stated that:

*"Sometimes the farm faces problems of accumulation of production and this is due to the lack of coordination and planning for future marketing, and also the farm is producing without any marketing plans .... People related to the government get involved without any official position in marketing of the farm's production even sometimes without letting us know ..... All marketing is done by the government, but I believe making profits will encourage people to run such profitable businesses ... In the case of this farm the profit is not recognized as the governors sometimes decide to sell the*

*production for nothing .... There is a kind of personal relationships, and if they keep going with this policy, the farm will fail in the near future"*

Concerning the private marine fish farm (code no: 2), the findings point to the high productivity of this farm. It exports the total production to Europe. It suffices to say that this farm is an exceptional model because it belongs to the son of Qaddafi. In oil rich countries like Libya, which has been governed by an authoritarian regime controlled by Qaddafi and a small clique of trusted advisers and relatives (Federal Research Division, 2005), some researchers (McSherry, 2006) (Karl, 1997) (Budina et al., 2006) have identified a robust and statistically significant association between oil dependence and authoritarian government. Oil appears to impede the establishment of democracy in most countries, especially in the Middle East and North Africa. McSherry (2006) argued that the oil leads to the exacerbation of already present pathologies in the political economy. He contended that several African oil-producing countries have adopted a similar path; they use the oil revenues to enhance their patronage networks.

The researcher concludes that this farm receives all the administrative and finance facilities it needs because of the relationship between the ruling elite and the oil wealth, which is not a direct relationship in terms of roles and laws but rather it is indirect due to the authoritarian government that allows powerful individuals to use the oil wealth for their personal benefit. For example, Academic B stated that:

*"There is dominance by some key people in the military and from Qaddafi's family over some agricultural projects ... some agricultural plans in the development are to achieve personal benefit ... Privatization trend may be true; but the intentions behind this procedure were not properly based on an economic decision; it was a hasty and deliberate political decision for the purpose of some people taking personal advantage".*

Actually, the case of this farm (coded no. 2) exposes the level of corruption in the government among the decision makers; but in addition to that it is an example of contradictory policies or contradictions in the application of those policies. Besides, this proves that the benefits seem to have been political or personal rather than economic or social. Put another way, it means that the government's rules and actions are not applied to all people equally. This view also supported by the farmer (1) when he stated:

*"Employees in banks treating people unequally, I mean some people access loans easily, but others do not. Depends on personal relationships".*

The analysis of data from different resources demonstrates that the ten obstacles that were listed in the framework clearly apply in the case of marine fish farming. According to the conceptual framework, these obstacles are:

1. Corruption,
2. Mismanagement,
3. Lack of monitoring systems,
4. Lack of clear vision of planning
5. Lack of information systems,
6. Lack of skilled workers and training programs
7. lack of a stable authority and stable rules and regulations
8. Lack of an adequate marketing system
9. Lack of an adequate financing system
10. Weak agricultural infrastructure,

In the case study the respondents strongly criticized the existing corruption. For instant expert B stated that:

*"There is something missing; ... marine fish farming should be developed more than ten years ago according to the announced allocations to the sector. But to be honest nobody knows where this money has gone! ... Lack of monitoring, with the spread of bureaucracy in the public sector, allows the increase of corruption ...it is the only explanation of the gap between the government allocations for development plans, and the actual development implications".*

Also official B stated that:

*"Non-agricultural exploitation of loans could easily happen, especially within the existing corruption amongst the administrative levels of the public sector. .... amongst the public sector administrations corruption has become a common phenomenon ... I have recognized many forms of corruption... in the government at different levels and I have dealt with many corrupt managers and directors".*

Some reports also mentioned corruption as one of the main problems affecting the realization of the required development; for example, the report, Libya at the Dawn of New Era (2006), identified the:

*"Existence of corruption and favouritism by government".*

The analysis of data also emphasized the lack of well-prepared and well-informed technicians and farmers, the absence of a stable administrative authority, the inefficiency of the information base due to the shortage of national research studies and surveys, the lack of clear government vision regarding the analysis of the limited agricultural resources, which in turn has led to mismanagement of the agricultural sector and weakness of the agricultural infrastructure. The following are extracts from raw data drawn from all resources that provide clear evidence of the existence of such problems. For example, academic A touched upon the mismanagement:

*"Mismanagement of the agricultural sector caused this delay ... If one makes a comparison between the expenditures and the returns; one will find out that there is inefficient use of the money allocations spent on the sector.... Most of the marine fish farms have failed because of the lack of efficient management of the sector in general not only of fish farms ..... losing money is mismanagement".*

Expert B referred to the lack of a monitoring system:

*"There is no real evaluation for the previous plans and projects that were conducted in the field of marine aquaculture ... Due to the carelessness of the government and its inability to monitor the sector's productivity, the sector is suffering from low growth rates and low efficiency".*

Official B also made reference to the lack of accurate information:

*"There are serious problems regarding the insufficient information system".*

The government document on the Marine Wealth Sector (Development Planning Overview, Libya (2008), touched upon the lack of clear vision in the planning system:

*"Although significant progress has been made in setting the stage for enhancing the role of fisheries and aquaculture in the national economy, the sector still holds considerable untapped potential .... The implementation of fish farming (aquaculture) projects seems to have been organized without reference to any comprehensive plan".*

Although the case study shows that financing problems only face the private farmers, who are outside the power elite, this can reflect not just the weakness in financing support but also the corruption among the government elite, as the private farm belongs to Qaddafi's son, who does not face financing difficulties. For example, Farmer (4) from the private sector stated that:

*"There are difficulties in obtaining loans.... Interest value is high ... The banks require too many kinds of guarantees, which are not always available; very complicated administrative procedures ... Easy access to loans makes the work in marine fish farming more stable and encourages the current workers to continue in this type of business, but this is not the case in Libya".*

Farmer (3), however, observed that the farmers did not have financing difficulties regarding the farm operations since the state provided them with their necessities. He stated that:

*"We do not have any trouble concerning the financing issues because the government is funding the farms".*

These difficulties are actually related to obtaining finance support from the government or through the Agricultural Bank; however, the study found that the financing system is insufficient. For example, government documents on the National Strategy of Libya's Non-Oil Economy (2006) mentioned the lack of sufficient financing systems:

*"The overall quality of the financial markets is poor... Financial services are insufficiently developed, and the Agricultural Bank may be crowding out the private sector. Investment is held back, largely because the existing land tenure system does not allow for the use of land as collateral".*

The non-governmental document of the National Agricultural Policies (2005) pinpointed the lack of skilled workers:

*"Lack of well qualified Libyan human resources .... Lack of well prepared and informed technicians and farmers further hinders the performance of the sector".*

Also, the annual report issued by the MBRC in 2004 stressed the lack of skilled workers as one of the main reasons for the inefficient operation of marine fish farming. The report stated that:

*"Most of the farms in public and in private are running with a critical lack of experience and lack of skilled farmers to run such a sensitive activity".*

The officials admitted that there is instability in the institutions, for example, official A stated that:

*" Instability in the administrative structure would cause insecure job feelings amongst the employees ...leading to low efficiency in their performance ...this is reflected negatively on the efficiency of the sector ... Huge amounts of funds are missing and there is difficulty in chasing them because of these changes".*

Expert A also identified inefficiency in the marketing system:

*"Marketing system is not efficient, and most of the fish farmers have difficulties in marketing their products ... local markets are very small and they lack the required equipment".*

The case study reveals that both the private and the public farms have marketing problems though they perceive these problems differently. There are insufficient markets; for instance, Farmer (1), who was from the private sector, stated that:

*"The Government policies regarding the marketing system are not stable; the fish markets are very insufficient; the conditions are not healthy and the managers are not skilful ...and there is a desperate need for improvement to be able to receive the products from the fish farms .... Also the government actions to protect the Libyan market from the imported products are very tricky and discouraging".*

Farmer (3), who was the manager of the farm (coded 3) in the public sector, stated that:

*"Facing problems in the marketing process, especially with costumers and intermediaries ... Sometimes the farm faces problems of accumulation of production and this is due to the lack of coordination and planning for future marketing, and the farm is producing without any marketing plans".*

The case study refers to the lack of related facilities and infrastructure; for example, whilst the report on Marine Wealth Sector (Development Planning Overview, Libya) (1995) mentioned insufficient infrastructure, the report also mentioned future plans for improving the infrastructure, which also reflect the current lack.

*"Existing infrastructure is not efficient enough to develop the activity of the fish farming sector...since 200 there have been many projects of establishing new fishery ports, fish markets, establishing of number of guides for fish farms".*

The data analysis identified other problems in addition to the ten core problems that have been presented above:

1. Lack of rural development programs and their application,
2. Deficiencies in the maintenance of the existing infrastructure.
3. Inefficient role of the research centres,
4. Ineffective role of the agricultural advisory centres.

The different data resources clearly identified the above new factors as obstacles to the development of marine fish farming sector in particular and agriculture in general. For instance, Academic A noted that:

*"There is no development in the rural communities ... The rural areas are still neglected. This is mainly because of the lack of integration between the development plans in the diverse aspects of socio-economy".*

The lack of maintenance of the existing infrastructure and establishments has also affected the development process. Farm (coded no 1) can be viewed as a good example of such neglect (see section 4.1). The site visit to this farm shows clearly the neglect by the government of the existing establishments and infrastructure, dating back to the 1980s when the farm originally started to operate. Much evidence on this issue emerged from the data analysis. Many establishments and buildings that were funded

from the national budget have, because of the neglect in the maintenance, eventually turned into scrap heaps. Expert A, for example, showed the researcher a building located beside the MBRC (where the interviews were conducted) and he commented:

*"it is not a car park, it is a hatchery, it is supposed to be a huge project, a marine fish hatchery, the government spent millions on this project, and at the last stage, when it needed proficient technicians to fix some parts of the hatchery, together with some extra equipment which did not cost more than hundreds of thousands, they stopped funding the project, and for more than ten years now, they have promised every day that they will bring the spares and the missing parts".*

The case study also illustrates the inefficient role of the research centres with respect to the development process. FOA reports stressed that point; for instance, the FAO report on the National Medium-Term Investment Program (2006) made reference to this and stated:

*"There is low contribution of agricultural research centres".*

It is also relevant in relation to the failings of the research centres to point out that despite the coastal length, of around 1900 Km, there is only one marine research centre, MRBC, with two small branches in Alkhoms and Bengasi. Also, these centres lack the necessary facilities and modern equipment for carrying out field research in the area of science. Expert A stated that:

*"Research Centres can provide a data base ... we need to facilitate the application procedures, physical materials ... need successful management .... Support from the government should be by two ways: first is by equipping and facilitating the aquaculture research centres.... Second is by facilitating imports of essential inputs for operating fish farms".*

The case study also raises the problem of the weakness of the agricultural advisory services' role. For example, the government report on Agricultural Development (1970-2005) indicated:

*"The Agricultural advisory service does not efficiently perform its required role".*

The report on the Marine Wealth Sector (Development Planning Overview, Libya (1995) explained that the weak contribution of agricultural advisory centres to fish farmers was because of the lack of facilities that would help inspectors and technicians to help farmers, stating that:

*"Experts from MBRC provide counselling to the fish farmers but they lack the necessary facilities and equipment that help them to efficiently conduct field surveys".*

There are two other main problems which specifically face the marine fish farming sector; but while they are both important issues, neither is sufficient on its own to explain marine fish farming failure. These two factors, although minor, can be seen as aspects of the general failure of Libya's agricultural policies:

1. Lack of interest on the part of the local community and their reluctance to engage in the activities of fishing and fish farming.
2. Technical problems.

The case study exhibits that traditions and culture are among the main drivers that motivate people to practise a specific type of livelihood in the rural areas. For instance, the non-government document on Planning for Aquaculture Development in Libya (1996) stated that:

*"Fish is not a particularly significant component of the national diet, as compared to meat and poultry".*

This may be considered as an important factor that should be taken into account when drawing up any plans and policies to develop the marine fish farming sector; the social influences in this regard are not unchangeable factors. Academic B offers an important example; he witnessed similar a phenomenon many years ago:

*"Regarding fish consumption, I think this is not a big issue. Libyans would consume fish if they found it highly available and cheap; for example, chicken consumption was in a similar situation about 20 years ago, where people did not choose to eat chicken, but now chicken is at the forefront of Libyan dishes ... Habits of food consumption generally change over time and with the development of societies".*

The data analysis shows that the farms that are still operating are facing technical barriers that make the work in fish farming difficult and need serious consideration. These are related to operation of the farms. The data provided much evidence to support this point; for example, expert A stated that:

*"Marine species are more sensitive, and need intensive care ... Major problem is the high cost of fodder... unstable local production of fingerling ... problem in providing spars, , and technical equipment ... problems in providing the operating materials (inputs) such as fodder, fingerling, chemical treatments and such stuff".*

Also, all the farmers, on the sites, stressed that obtaining fodder and fingerling and their transfer and storage are the main problems in production operations. Technical problems face both the private and the public sectors; for example, Farmer (3), who is employed in the public sector, stated that:

*"The source of the problems in the production operations is disease; the foddering lacks skilled technical workers and the water quality is bad and unsuitable".*

Similarly, Farmer (2), who was employed in the private sector, stated that:

*"The source of the problems in the production operations is the foddering; there is a lack of skilled technical workers".*

Also, the annual surveys conducted by the MBRC show the technical difficulties facing the farms. The first annual report, in 2004, stated that:

*"Some of the farms do not reach operation level at all because of non-completion of the rest of the facilities and do not repair technical errors ... Some public and private farms have stopped operating due to technical errors in tanks designs, pipes and water connections".*

In conclusion, the marine fish farming sector faces the same difficulties, as identified by the conceptual framework, that face the agriculture sector, although the study shows that technical problems and lack of community interest specifically apply to marine fish farming. However, these should be considered as a part of policy failure. There is no doubt that these factors are important but they are not enough to explain the failure. In addition, the lack of local community consumption of fish production is an issue related

to the weak marketing policies and system. The technical difficulties possibly reflect the weak role of the advisory centres. The problems affecting the practice and operations of marine fish farms in Libya could not be addressed explicitly in the literature review due to the notable lack of literature on the marine fish farming sector in Libya (see Alkhomsy, 2008; Abo-khdair and Alzargani, 2005); some of these problems have been put forward in the overall context of the constraints facing the development of the agriculture sector as a whole, including fish farming.

From the field surveys and the description provided in section (4.1) above, it becomes apparent that the farms operate differently: some operate well whereas others do not. On the other hand, the problems that face the farms are similar in some respects and different in others. It is difficult to determine the specific factors behind these similarities and differences. For example, it might be possible to argue that different types of farm ownership can cause different types of problems; but the findings do not strongly support this view. The analysis of data shows that the public sector farm at Farwa is operating well, while other public sector farms have failed. On the other hand, it also reveals that one of the private sector farms was operating well, while the other two farms were struggling, and one has now failed. The issue seems to be related to the management and operation of the marine fish farming sector as a whole rather than to the management and operation of the fish farms as separate units.

According to the MBCR annual surveys (2004, 2005, 2006, 2007, 2009), many fish farms stop working due to the neglect by the government of these farms; the government simply stopped funding them. This reflects the gap between the announced desire of developing the sector and the actual actions taken by the government. The findings show that farm (3) was in a different situation, as it was established by foreign investment from a French company; moreover, it seems to operate for the benefit of people from the ruling elite, as has been clarified above. So they have kept on funding this farm, possibly to take advantage of the corruption existing in the public sector to gain personal financial rewards.

The problems that face the practice of the marine fish farming rather than the agriculture sector in general are mainly technical; issues relating to marine fish farming. Nevertheless, other problems, such as insufficient markets, marketing difficulties, inadequate finance and the lack of proper management, can be interpreted as outside the

internal environment of the farms. They are the result of the obstacles affecting the sector of marine fish farming as an agricultural sector domain. For example, the lack of skilled workers on the farms derives from the shortage of training programs, whilst the financing difficulties are the result of the lack of efficient banking systems. Consequently, the framework needs to be revised to address the problems highlighted by the findings.

#### **4.3.3 The Failure to Achieve Development Targets**

The case study reveals that there is strong potential for developing and enhancing the productivity of the marine fish farming sector in terms of the realization of self-sufficiency. FAO reports and experts from the MBRC along with other government reports confirm the ability of Libya to increase fish production from both natural fishery and fish farming. For example, the government report on the Development of the Marine Fishery and Fish Farming Sector (2008) stated that:

*"Libya has strong potential to establish developed practices in marine fish farms, including natural resources, low cost of human resources and low cost of energy".*

Despite the criticisms contained in the FAO report of the Marine Wealth Sector (Development Planning Overview Libya), (1995) it also mentioned this potential, as demonstrated below:

*"More potential is available for Mari-culture ....there are extensive areas of shore land which could prove suitable for pond and raceway developments of both large and small scale".*

Despite this potential, marine fish farming is at present failing to contribute to realizing the target of self-sufficiency at any level, and the sector's contribution to the total fish production is insignificant. The same report stated that:

*"Past and present development investments in aquaculture projects are justified in terms of their possible contributions towards longer-term goals of economic diversification, food production self-sufficiency, but as yet these targets have not been met".*

According to sections 4.1 and 4.2, fish farming has demonstrated low growth and weak performance, by which it can be understood that the sector has failed to achieve the required level of fish production. Furthermore, the government report on Agricultural Development (1970-2005) stated that:

*"Agriculture sector has succeeded in meeting the target of self-sufficiency in some agricultural products ...mainly in vegetables, eggs, and some fruits ... but the contribution of fishery and fish farming production is inconsiderable".*

Regarding the other targets, the results demonstrate that the sector has failed to contribute to the national economy, with its contribution to the national economy being very low. Much evidence emerged in the data analysis of low performance, low productivity and insignificant contribution to GDP. For instance, academic A, in describing this low contribution of marine fish farming to GDP, stated that:

*"Where its contribution to the GDP is very low ... there is a decrease in the contribution to the economy".*

Furthermore, the findings displayed that the sector did not contribute to providing attractive job opportunities for Libyans; the Marine Wealth Sector (Development Planning Overview Libya) (1996) stated that:

*"National fisheries and the aquaculture sector thus account for only a very small fraction - around 1 percent - of the total labour force in Libya".*

In conclusion, marine fish farming has failed to increase fish production; thus, the sector has failed to contribute to realizing self-sufficiency. Also, marine fish farming has failed to contribute to the national economy, as reflected in the sector's insignificant contribution to GDP, or to increase the number of workers engaged in such activity.

#### **4. 4. Conclusion**

The researcher attempted to illustrate the real situation of marine fish farming in Libya and why it has failed in practice. The researcher also aimed to test the key themes of the conceptual framework, including the drivers and the obstacles of the development

process of agriculture sector in Libya, via data analysis. In summary the chapter produced the following findings:

- The marine fish farms' performance is inefficient. It is characterized by low efficiency, low productivity and low growth rates among these farms. The marine fish farms are economically undeveloped; there is clear evidence to demonstrate the continual failure of many fish farming projects, and a gradual reduction in the number of the operating fish farms.

- The availability of oil as a non-renewable source of revenue and the ways of exploiting it are key drivers affecting government policies. Oil has played a negative role in the development of marine fish farming as a non-oil sector. Its negative impact is reflected in the high dependency on oil revenues as the sole income resource and the main funding resources for marine fish farming. Also, it is reflected in the ignorance of the government regarding the development of marine fish farming and in the appearance of Dutch disease symptoms (section 4.3.1).

- A large number of planned economic criteria have been adopted, the most important of which is the public sector domination of the establishments and organizations. The government has increased the role of the public sector at the expense of the private sector. This has had a negative impact on the development process as the public sector in Libya is characterized by low efficiency and the spread of bureaucracy and corruption (section 4.3.1).

- The political ideologies that the concepts and beliefs of Qaddafi represent are other key drivers of agricultural policies for developing the marine fish farming sector. In particular, the ideologies related to realizing self-sufficiency are merely political propaganda and have no relevance to economic considerations. This is evidenced by this study's findings in relation to the gap between the development programs announced by the government in its reports and the actual or implied development of the sector (section 4.3.1).

- The presence of the ten core obstacles identified from the literature review for the framework is confirmed by the marine fish farming case study (see section 4.3.2). However, the following four obstacles emerged during the case study:

1. Lack of rural development programs and their application,
2. Deficiencies in the maintenance of the existing infrastructure.
3. Inefficient role of the research centres,
4. Ineffective role of the agricultural advisory services.

- Two barriers were identified as applying specifically to marine fish farming and can be presented in the context of general agricultural failure; these are:

1. Lack of interest on the part of the local community and the reluctance to engage in the activities of fishing and fish farming
2. Technical problems

- The existing successful marine fish farms have survived because of their particular situation related, in general, to their ownership and funding resource. They also have links, in one way or another, to the ruling elite. This implies the existence of corruption and also of personal exploitation of oil revenues by people related to the political leadership. Those two farms are different from others which have struggled or been abandoned. This makes it difficult to generalize the successful experiences to the whole sector (see sections 4.2 and 4.3.2).

- Marine fish farming has failed to contribute to achieving the core targets of agricultural development, including realizing self-sufficiency; contributing to the national economy; and contributing to providing job opportunities.

In conclusion, application of the conceptual framework has fully explained the failure of the marine fish farming sector and the impediments that have hindered the marine fish farming sector from achieving any of the core stated targets of development. The efficacy of the framework is proved by the triangulation of evidence from data resources, including structured and semi-structured interviews in addition to government and non-governmental documents.

In the next chapter the researcher will discuss the case study in relation to the debate introduced in the literature review in chapter two, in terms of the development of the agriculture sector.

# Chapter Five: Discussion

## 5.0. Introduction

The researcher developed a framework based on the literature review debate, with the aim of providing an answer to the research question. In the previous chapters (2,3 and 4), the researcher identified the themes of the conceptual framework, pinpointing the existing relationships that bind these themes. The framework clarified the process of agricultural development and specified the factors that hindered it from achieving the stated targets, to feed the research aim of:

- ❖ Investigating the failure of agriculture development in Libya in the context of oil wealth and the prevailing socio-political culture, through an in depth investigation of the failure of the marine fish farming sector.

The researcher utilized marine fish farming as a case study (see chapter 4) to reflect the situation of the agriculture sector, excluding the ecological factors. The research aim entailed understanding why the agriculture sector failed to realize the targeted development and growth rates, or to attain the constant goal of self-sufficiency for most of its products, in spite of the high government spending on agriculture, whether on development plans or on operational expenditure. In the following sections, the researcher discusses the case study (chapter 4), bearing in mind the debate conducted in the literature review (chapter 2).

### 5.1. Drivers of Government Policies Toward Agricultural Development

Libya still faces the formidable challenge of overcoming the long period of centralized economic management by ruling elites, the excessive reliance on the public sector and heavy dependence on oil (Allan, 1981; Ghanem, 1985; Bruce, 2008; Vandewalle, 2006). According to the conceptual framework, the main drivers of the government policies toward the development of the agriculture sector are the availability of huge revenues from the oil sector and the political ideologies, together with the dominant role of the

public sector in planning the economic system. These three factors are the key drivers of the development of the marine fish farming sector in particular and of the agriculture sector in general.

The dominant role of oil on the economy has had negative effects on the agriculture sector, resulting in the low performance of the agriculture sector, including the marine fish farming sector. The high dependency on oil has reduced the willingness to give more attention to increasing the productivity of the sector. It has also encouraged the emergence of Dutch Disease symptoms; for instance, the governmental document on Libya at the Dawn of a New Era (2006) stated that:

*"The economy is dominated by the oil sector ...the oil resource revenues support distortive subsidies which work against the efficiency of the economy".*

Academic B also made clear reference to the phenomenon of Dutch Disease when he said:

*"Negative consequences are still present, as the country has experienced some symptoms of the Dutch Disease; which are revealed as a result of the lack of practical attention to the development of the non-oil sectors or to improving their economic and social productivity"*

It is the researcher's conviction that Libya is a typical example of developing oil rich countries, whereby oil is the soul of the entire economy, which depends on revenues from oil to fund and operate the non-oil sectors. This has resulted in an inefficient non-oil economy. The literature debate referred to the phenomenon of the Dutch Disease, whereby the discovery of oil negatively impacts on the economy; Bravo-Ortega and Gregorio (2005) maintained that there are many experiences where the oil sector has been blamed for the underdevelopment or the low growth rates of some economies. Libya seems to be one such example; the Libyan economy reflects symptoms of the Dutch Disease caused by the dominance of the oil sector over the other economic sectors, the negative patterns of the usage of oil resources, and the inability to diversify the production base (Otman and Karlberg, 2007).

On the other hand, oil is the major source of funding for the agricultural sector. Alseah (2004) argued that the sector was unable to fund itself as the saving rates were lower than the funds needed; it essentially depends on the oil revenues, which constitute about 93.1% of funding resources for the agricultural sector. Despite the inefficient performance of agriculture and its low contribution to the economy, the government has continued to implement policies for continual funding of the agriculture sector, and indeed this funding is drawn from the oil revenues. The academics and experts both stressed this point; for example, Academic A stated that:

*"Oil has a side effect on the economy ... Oil has not been exploited effectively to build required infrastructure for the development of non-oil sectors.... Oil allows government to spend on agriculture generously without any attention to economic efficiency".*

The continual spending of the government on the agriculture sector, whilst neglecting to increase its efficiency, is not only due to the availability of high returns from oil (as has been evidenced from data analysis), but it is also caused by the adopted political ideologies of the ruling elite; the Libyan economy has not only been changed by the discovery of oil, but it has also changed as a result of the changes to its political regime since the 1970s. Vandewalle (2006), for example, pointed out that Qaddafi's directives and the huge revenues from oil have had devastating effects on Libya. Also, Ghanem (1985) demonstrated that the government priorities in terms of economic sectors differ over the course of time, depending on political and economic changes. Ansell and El-Arif (1972) clarified that Qaddafi's government accorded top priority to the agriculture sector as a means to achieve self-sufficiency.

Yahia and Metwally (2007) mentioned the changes in Libya's economic policies in the 2000s that moved toward an economy more open to international markets and the private sector, although this was accompanied by a reduction in the consideration of the agriculture sector compared to in the 1980s and 1970s, and the directing of more attention toward services and tourism. However, this did not mean that Qaddafi's ideologies had been changed or suspended; according to Porter and Co-chairmen (2006), agriculture was still considered by the government as the main means of realizing self-sufficiency.

The declared slogan of "realizing self-sufficiency", accounted for the Qaddafi regime's dedication to agriculture. In the *Green Book*, he stated: *"no freedom for a nation that brings food from across the sea"* (Qaddafi, 1977). This statement, in particular, expressed the interest of Qaddafi in the policy of food self-sufficiency, and thus accounted for the continual spending on the sector of agriculture as the main tool to achieve such a policy. Academic B linked government spending on agriculture with the realization of independence, as a "revolutionary target" in referring to Qaddafi's coup in 1969, thereby suggesting a political link in terms of the continuous spending on the sector. He stated that:

*"One of the revolutionary targets was to be independent through being food self-sufficient; this has a very strong influence on the way that the government spends"*

The political, economic and social policies were identified in the *Green Book*, which reflected the tenets of Qaddafi (Cooley, 1981). Wallace and Wilkinson (2004) claimed that the template for the economic development remains the *Green Book*. However, Lawless and Findlay (1984) argued that the effects of the *Green Book* were indeterminate in many aspects of Libya's economy and that its real impact on economic growth in Libya has been less than one might think, considering the publicity it has been given. The data shows that political ideologies, whether stated in the *Green Book* or anywhere else, still have an effect on the economic decision makers; for example, the government report on Libya at the Dawn of New Era (2006) stated that:

*"A competitive framework of development and the Green Book share essential principles to enable Libya to define its own unique economic mode".*

Other evidence was provided by official A's statement that:

*"There are general ideologies higher than the specific policies of the agricultural sector...it is like the essential reference one should not go beyond".*

This view does not refer explicitly to the influences of the *Green Book* or Qaddafi's thoughts, but the statement "General Ideology" can be understood as political ideology when he said "should not go beyond". Qaddafi's thoughts set the policies agenda for the entire Libyan economy. Though the official did not refer directly to this involvement, one can infer from what he said below that decisions are made by the ruling elite,

regardless of the perspectives of officials at the administration implementation level. Official A stated that:

*"I have limited power...I can give my comments or suggestions to the general council of planning but I cannot force them to adopt them. The Ministry of Agriculture is not alone in making decisions. There are complicated issues in this regard which are impossible to explain".*

Also Academic A supported the view of the presence of political involvement in economic decisions by stating that:

*"No freedom for a country that brings food from across the sea..... Since the 1970s planners and policy makers have adopted this statement as a base on which the agricultural policies and plans are formed.... It is ideological and political ambition with no relevance to the economy that leads the government to keep spending money on the sector in this way.... The project of Man Made River was for a political purpose rather than economic ... it is the best example of the sterile and short-sighted policy that may lead to catastrophic consequences for society as a whole .... None of the promises regarding improving agriculture through this project were kept".*

The data analysis shows that there was always an indication in the government reports, through references and declarations, that Qaddafi and his thoughts played the most important role in any achievement in the agriculture field, and his directions were the key drivers of development.

The discussion of the case study in chapter 4 (section 4.3.1) demonstrates these strong indications. The results show that most of reports conducted by government focus on the role of Qaddafi in any progress made in the agriculture sector. They reflect this by quoting passages from the *Green Book* or transcripts of Qaddafi's speeches in the first and last pages of these reports, giving great thanks to Qaddafi for what they describe as great directions. As an example, the government report on Agricultural Development (1970- 2005) commenced with the following statement:

*"The support and continuing guidance of leader Qaddafi for developing the agricultural sector and the achievement of agricultural renaissance was to ensure the provision of*

*basic food needs for the people of Libya and therefore all the plans and policies have derived and continue to stem from such guidance".*

The declared interest of the government in developing agriculture was not accompanied by appropriate economic measures for putting these ideologies into practice. It is evident from the case study that these ideologies were merely political ambitions and had no relevance to the economy.

Refusal of the propaganda to recognize the failure of agricultural policies led to a situation where it was impossible to critically review the development of fish farming as reported by officials. Academics and experts expressed such views in the interviews. For example, Academic A stated that:

*"All that you hear about the development projects are just political announcements .... There is no real willingness to realize development, whether in marine fish farming or in any other agricultural activity....It is ideological and political ambition with no relevance to the economy that encourages the government to keep spending money on the sector in this way".*

In conclusion, political ideologies seem not to have been employed to serve the declared targets (for example, realizing self-sufficiency), but they were employed to promote the hidden targets (political benefits). Neither economic considerations nor even the social considerations were the key players in the process of agriculture development. If one assumes that there were economic considerations in Qaddafi's intentions regarding the agriculture projects, the failure of many projects, including the large scale fish farms, as evidenced in chapter 4 (see section 4.1, 4.2), should have made him alert to the mistakes in his policies and their implications. However, the main political goal was to create an image of himself in the eyes of his people as a leader who aspired to independence and freedom, regardless of the means to achieve them. For example, there is strong emphasis on that point in the government report, General Framework for the Agriculture Sector (1994), which stated that the:

*"Libyan people stand in honour and in recognition of the leader Muammar Gaddafi, who is leading a green revolution through his directives and follow-ups, which is the on-going path of action to achieve growth and prosperity .... the green revolution, which*

*was launched by the great revolution of September over more than three decades ago, established massive infrastructure and achieved great achievements in the field of plant and animal and fish production in order to reach self-sufficiency".*

The political ideology has also displayed its influence on the economic system adopted in Libya. The literature review (see for example, Bruce, 2008; Anderson, 1986; Fathaly and Palmer, 1980; and Cooley, 1981) indicated that socialism in Libya was not invisible, but was declared in Qaddafi's beliefs when he announced the formal name of Libya as the "Socialist People's Libyan Arab Jamahiriya". Since 1973, Libya has simply applied some of the most radical measures of the socialist approach, especially with regard to the private sector. Qaddafi abolished all activities of the private sector, as it is, in his view, a type of human exploitation and slavery, and he referred to businessmen as exploiters. This view is based on many statements in the *Green Book*; for example, Qaddafi (1977) stated that income of the public ownership goes back to the community, including the workers, and that the income of the private foundations goes back to their owners only.

From the research findings (4.3.1), it is possible to claim that Qaddafi's ideologies towards the private sector paved the way for dominance by the public sector and then for adoption of the planned economy; for example, the non-government document on National Agricultural Policies (2005) supported this view on increasing the role of the public sector through the adoption of socialists thoughts. It stated that:

*"Since the socialist government took over, the public sector has always been the main source of investment; private sector investment has decreased".*

Academic A clearly stated that the *Green Book* influenced the government's decisions:

*"Look at the Green Book and you can recognize why the government has reduced the role of the private sector".*

Despite the different attempts to reform the economy with respect to reducing the role of the public sector, the state still controls the economy. Although the case study did not reveal any consensus among the interviewees regarding this point, one can notice that only the officials referred to these reforms as real steps, while the academics and the

experts argued that they were not real. However, although the government documents laid out plans for speedy achievement of these reforms, none of the non-governmental documents confirmed their implementation. For example, expert B stated that:

*"The Government did not practically change its policies toward the sector. The changes were only initiated in formal documents, but on the ground it is still the same".*

Though the government tried to reform the economy, the political elites still exerted an inhibiting influence. For example, expert A stated that:

*"The intentions behind this privatization procedure were not properly based on an economic decision; they were hasty and deliberate political decisions".*

whereas official A defended the credibility of the government toward realizing these reforms by stating that:

*"The change now in government policies ... expects more involvement of the private sector... The Government took real steps toward reforming the agricultural sector to make it more efficient".*

Meanwhile the governmental document on Evaluation of Agricultural Policies (1970-2000) stated:

*"In the 2000s, the trend is to realize the maximum level of food self-sufficiency so the government allowed the private sector to contribute more actively to developing agriculture".*

Alafi et al. (2009) argued that Libya has started to give more opportunities to the private sector since 1987, responding to the different situations, including the drop in the oil market prices in the late 1980s, the UN sanctions in the early 1990s and the poor financial performance of many public sector firms in the 2000s. Despite these moves towards an open market economy, the Libyan economy has largely been state controlled and poorly diversified (Bruce, 2008; Alison, 2010). The government interventions and regulations still did not give the required encouragement to the private sector, and the socialist economic policies still cast a shadow on the transformation processes (Vandewalle, 2006; Alsach, 2004). The public sector is the key investor in the

production and marketing of the agriculture sector, despite the increasing role of the private sector, but the latter is still limited to small scale businesses. The public sector clearly failed to manage the processing and marketing of the agricultural outputs.

The state, in its management of the economy, leans towards socialism; such policies affect the means of exploiting and distributing the oil revenues (the national budget allocations), with the public sector receiving the lion's share of these allocations, despite its lack of efficiency. Official A stated that:

*"The public sector has, through time, confirmed its inefficiency".*

From consideration of those three drivers, the researcher found that there is a recognized overlap and complex relationship between them, whereby political ideology formed the economic system by announcing socialist measures, including adoption of a planned economy, with the public sector leading the economy. Likewise, ideology determined the path of government policies for developing agriculture in terms of realizing self-sufficiency as a means of achieving independence. So it is possible to state that Qaddafi's ideologies have determined government policies. On the other hand, the public sector is able to continue ruling the economy because of the on-going funding deriving directly from the oil revenues. However, the existence of oil is the crucial factor in enabling the political leadership to implement its ideologies via the planned economy system, in a form whereby the public sector takes the dominant role, despite its inefficiency. On the other hand, it is also possible to observe that the availability of oil revenues allowed Qaddafi to put these ideologies into practice through continuous spending on the agriculture sector, aiming to realize the target of fully self-sufficiency, whether this aim could be achieved or not.

## **5. 2. Elements Obstructing the Development Process**

The conceptual framework displayed a number of obstacles and constraints that have delayed achievement of the required development in the agriculture sector. The analysis of the data demonstrates the existence of such obstacles (see section 4.3.2 chapter 4), but it also documents the presence of new problems which were not included in the framework. According to the findings presented in chapter 4 section 4.4, the conceptual

framework needs to be re-considered with respect to the obstacles that hinder the development process.

The conclusion to the literature review outlined many factors that hamper economic development in general and the development of the agriculture sector in particular. These obstacles have been identified in the conceptual framework, which was empirically tested through the case study of marine fish farming and the analysis of data collected from different sources. The case study analysis in chapter 4 pinpointed several problems that led to the failure of the marine fish farming development in particular, and impeded the development of agriculture in general.

Regarding the problems facing marine fish farming and likewise facing all other agriculture sectors; The analysis of the data identified that the barriers that have impeded the development of agriculture sector, as presented in the conceptual framework, have also hindered the development of marine fish farming. In addition, other problems have emerged which include: lack of rural development programs and their application; deficiencies in the maintenance of the existing infrastructure; inefficient role of the research centres and ineffective role of the agricultural advisory services. On the other hand, the analysis of the case study highlighted problems that specifically affect the marine fish farming sector, including technical problems and lack of interest among the local community and reluctance to engage in the activities of fishing and fish farming. Despite these particular two problems complicating the issues, the findings of the case study on marine fish farming can still be applied more widely to the agricultural sector in terms of policy failure and it has succeeded in meeting the themes identified by the conceptual framework.

From the literature review several issues were identified as barriers that have hindered the realization of agricultural development. For example, Etlopa (2007), referred to the lack of a skilled workforce as one of the main variables affecting agricultural productivity. The efficiency of the agricultural marketing system is low by all standards, as reflected by the lack of marketing information, high post-harvest losses, and bottlenecks in distributing farm products, inefficient packaging, grading and handling processes (Aljady, 2005). Yahia and Metwally (2007) argued that agriculture and non-oil industries have not, since 2001, received as much attention from new developers as before 2000.

Alsaeh (2002) argued that the role of financing institutions in agricultural development was still lagging behind the required levels. Briefly, the literature review discussions reveal that many researchers, such as Fathaly and Abusedra (1980); Allan (1983); Ghanem (1985); Alsaeh (2004); Vandewelle (2006); Etlopa (2007); and Bruce (2008), have pinpointed various barriers that have hindered the development of the agriculture sector.

Through data analysis (4.3.2) based on the extended framework, the main barriers that have hindered the development of the agriculture sector, including marine fish farming, were identified.

The results show that the spread of corruption caused by the lack of monitoring and the inefficient policies might have led to exploitation of these policies for personal interests; the governmental report on the General Framework for the Agriculture Sector (1970-2005) clearly emphasized the lack of monitoring to explain the loss of allocations, which can be seen as evidence of the presence of corruption. The report stated that:

*"There is clear deficiency in the monitoring system; there is a gap between allocation and the actual expenditure on agricultural projects due to the weakness of monitoring institutions".*

Likewise expert A also pointed to the corruption:

*"Many farms have been endorsed but they neither operate nor exist on the ground .... I expect that, it is just a speculation ... There is a considerable level of corruption in the government administration".*

The results also place strong emphasis on the lack of well-prepared and well-informed technicians and farmers, the absence of a stable administrative authority, the inefficiency of the information base due to the shortage of national research studies and surveys, and the lack of a governmental clear vision regarding the analysis of the limited agricultural resources, which in turn has led to mismanagement of the agricultural sector and weakness of the agricultural infrastructure. Also there is a lack of efficient financing and marketing systems. Although some issues might be difficult to elucidate because of

the nature of the political regime, evidence from the data analysis demonstrated clearly the existence of some core problems (see section 4.3.2).

Four the additional problems emerged from the data analysis:

- Lack of rural development programs and their application,
- Deficiencies in the maintenance of existing infrastructure.
- Inefficient role of the research centres,
- Ineffective role of the agricultural advisory centres.

While these obstacles were not presented in the conceptual framework, the case study identified them from different data resources as also hindering the development process of the marine fish farming sector in particular and agriculture in general. The data analysis showed that the rural areas are undeveloped in terms of lack of infrastructure and facilities. This is still a neglected area. There is a lack of integration between development plans for the agriculture sector and the diverse aspects of social development. Much relevant evidence emerged from data analysis; for example, some farmers referred to the lack of development of the rural areas surrounding the farms as having a negative effect on the local community because the young people have lost the desire to stay and work for their community. For instance, farmer (3) stated that:

*"Lack of infrastructure in relation to the rural areas where farms have been established, there is also a lack of facilities and services ...Lack of development programs for local communities in the rural areas around marine fish farms ... this will discourage the youth from involvement in such projects, whether they run their own project or work in others' projects... as they will prefer to work in urban areas".*

The other obstacles are a lack of maintenance of the existing infrastructure and establishments. The analysis of data clearly demonstrates a failure by the government to maintain establishments in operational condition, which also reflects management failure within the sector. Much evidence emerged, from site visits and surveys conducted by the MBRC as well as from the interviewees, that many establishments and facilities ceased to operate because of the lack of maintenance. However, as an example, the non-governmental documents on the National Medium-Term Investment Program (2006) emphasized that problem as a major challenge:

*"Libya has witnessed wide-scale development of good infrastructure in terms of electricity, roads, dams, reservoirs, and communication networks, but maintaining them is a major challenge facing the Libyan authorities".*

This is a very important aspect of the development process, as building the required infrastructure is not enough; most importantly, it needs to be maintained. There are many establishments that have used up considerable amounts of the national budget but because of the neglect of maintenance, they have eventually turned into scrap heaps.

The results illustrate that the research institutions play a limited role with respect to the development process and plans. Although it is well known that in most developed countries the government gives high regard to research institutions and utilizes their academic expertise to draw up development plans, the Libyan government seems to neglect the important role of social and applied science research centres. Experts and academics considered this to be one of the main obstacles to the development planning process; for example, Academic B pointed out:

*"Economists and experts should be given the chance to draw up agricultural policies, and the biological specialists can contribute to improving the practical aspects of the sector".*

The study also clarifies the weak role of the agricultural advisory services and their failure to efficiently perform their required role of improving agricultural practices; the report of Evaluation of Agricultural Policies (1970-2000) evidenced that:

*"The main mission of agricultural advisory services is to coordinate with the basic agricultural research centres and scientific institutions to develop programs of training and guidance to farmers ... but for many decades they have failed to play the required role in this regard".*

In general, these additional issues are not major issues in terms of altering the proposed conceptual framework; rather they could be incorporated into the conceptual framework as obstacles which face the development of the agriculture sector.

On the other hand, turning to the obstacles that only affect the practice of fish farming, two factors emerged:

- Lack of interest on the part of the local community and the reluctance to engage in the activities of fishing and fish farming
- Technical problems.

As was explained in section (4.3.2), these factors, although important, do not suffice to explain the failure of the marine fish farming sector. They are aspects of the general failure of agricultural policies. Much evidence emerged from the data analysis regarding the lack of engagement in fishery occupations among the local people. For instance, the non-governmental document on Planning for Aquaculture development in Libya (1996) stated that:

*"Fish is not a particularly significant component of the national diet, as compared to meat and poultry".*

Some references in the literature review (see, for example, Alan, 1973; and Hamed, 2007) pointed out that Libya, traditionally, was an agricultural society relying on cultivation and grassing animals; mainly sheep, goats and camels. Despite the long borders to the Mediterranean Sea, fish did not feature very highly in the Libyan diet. Lamb meat was the main source of animal protein, followed by poultry (chicken), and lastly fish.

Despite this negative trend toward fish consumption, academic B claimed that social influences in this regard are not unchangeable factors. He gave an example of chicken consumption 20 years ago, when people did not choose to include it in their diet, whilst nowadays it is the most popular meat, in competition with lamb. This factor only affects fish production, whereas in other forms of agricultural production the processes of supply and demand define the size of production. However, many steps can be taken by the government to encourage people to consume fish. For example, pricing policies and advertisements about the importance of fish animal protein could increase the local consumption of fish.

The results also identify some technical barriers facing the operating of marine fish farms, in relation to obtaining fodder, fingerling and other inputs and consequently to the transport and storage processes. In support of that point of view, expert B, for example, stated that:

*"Farmers face difficulties in the storage and transport of the fingerling .... Technical problems; especially in the essential stages of farm establishments and site selection ... Treatment of the outlet water, especially in intensive land farming systems".*

From a general viewpoint, one can observe that the ten obstacles presented by the conceptual framework, in addition to the other obstacles identified, which hinder the success of the fish farming sector, can also hinder the development of the rest of the agriculture sector. Therefore, the study has demonstrated that barriers that apply specifically in the case of marine fish farming can relate to obstacles facing the agriculture sector as a whole, such as weak marketing systems, inefficient role of advisory services and mismanagement of the sector, which reflect a general failure of the agriculture policies to realize the desired development.

Nevertheless, other problems such as lack of markets, marketing difficulties, inadequate finance and the lack of proper management, weak infrastructure, and inefficient information systems, can be interpreted as being outside the operational environment of the farms. They are the result of the obstacles affecting the sector of marine fish farming as one of the agriculture sector domains. The case study in general displays that there is not much difference between the obstacles facing the agriculture sector as a whole and those affecting marine fish farming in particular. Consequently, the framework needs to be modified to include specific problems emerging from the findings.

### **5. 3. Failure to Achieve Development Targets**

According to the literature review (see, for example, El-Wifati, 1987; Allan, 1987; 1981; 1973; Abidar and Lytimi, 2005; Larbah, 1996; El-Azzabi, 2002; Alsaeh, 2010; Egzaima, 2007; and Etlopa, 2007) there have been a number of targets for the development of agriculture, with the main targets being food self- sufficiency, increasing the sector's contribution to the national economy, and reducing the unemployment rate through providing attractive job opportunities.

The results (see chapter 4 section 4.4) reveal that despite the available potential, mainly natural potential of the sites' topography and sea water conditions, for developing and enhancing the productivity of the marine fish farming sector, marine fish farming has

failed to realize any of the main targets for agriculture development. In this regard, the researcher has attempted to confirm the failure of marine fish farms to achieve these core targets, through the analysis of government and non-government reports, in addition to the perceptions of interviewees, in relation to the current situation of the marine fish farming sector. All the data resources and respondents confirmed that the sector is performing poorly. One of the reports on Agricultural Development (1970-2005) even dismissed the productivity of marine fish farming by stating that:

*"Fish production from fish farming is inconsiderable".*

This deteriorating situation reflects the failure of sector to achieve development which would enable it to increase total fish production, and thus it has failed to contribute to realizing food self-sufficiency. The literature review identified that Libya still depends heavily on foreign markets to provide its food necessities despite the government's efforts to realize self-sufficiency in food production (FAO, 2009). Libya has achieved self-sufficiency in agricultural food areas such as some vegetables, eggs, and poultry but there is still a significant lack of many important agriculture products (Larbah, 1996). Under the difficult climate conditions, FAO (2008) predicted that in Libya food self-sufficiency is now impossible and will become even more unachievable in the future. This can be taken as confirmation of the failure to realize this target in terms of plants and animal production. This point of view has been supported by the comments of some respondents; for example, official A stated that:

*"The target of realizing self-sufficiency is much higher than the agricultural potential available in Libya".*

Actually, when it comes to fish production, the situation seems to be different. While Libya has the potential to develop a strong fishery and fish farming industry, fishing resources are not fully exploited, despite the large supplies of many fish species (FAO and MBRC, 2001). According to FAO statistics, Libyan local fishery covers only 25% of the local demand for fish, whilst the remaining 75% is covered by fish importation (FAO, 2009). Hamad (2007) argued that the increasing gap in fish production reflects the increasing demand for fish and the inefficiency of the fishing industry in Libya, which has largely failed to meet local consumption needs. The slow growth of the

fishery industry could be traced back to the low investment in fishing boats, ports, processing facilities, and to the lack of skilled anglers (Al-Orfy, 1995).

The study demonstrates that the sector has failed to contribute to diversification of the national economy, with its contribution to GDP being insignificant. The low growth rate and low productivity of the sector have prevented it from contributing to national income. The literature review (see, for example, Shalloof et al., 2010; Alsaeh, 2004) identified that the agriculture sector's contribution to national income was one of the lowest among the non-oil sectors (see chart 2.11). Hence, Otman and Karlberg (2007) argued that the fishery sectors have contributed the lowest share to agricultural GDP. This finding has been confirmed by the primary research of the current study, whether from the analysis of documents or interviewees' responses. For example, the FAO report on National Medium -Term Investment Program (2006) described the performance of the sector as the worst among the agricultural sectors:

*"Low performance ran almost right across all sub-sectors of agriculture; performance of the fishery sectors remained the worst".*

Likewise, the report on the Marine Wealth Sector (Development Planning Overview Libya)(1995) clearly stated that:

*"Estimated fishery contribution to Agricultural GDP likewise is fairly negligible; standing at around 10%...Aquaculture's contribution is insignificant".*

Also, Academic B supported this finding in stating:

*"Fishing and aquaculture contributions to the GDP are inconsiderable".*

In addition, the results show that marine fish farming does not contribute to reducing unemployment or providing new job opportunities for Libyans. The FAO report, Development Planning Overview (Libya) (1996), stated that:

*"Natural fisheries and the aquaculture sector thus provide only a very small fraction - around 1% - of the total labour force for Libya".*

The literature review (see, for example, Abidare and Lytim 2005 and several reports issued by AOAD 2009/2010) showed that the agriculture sector as a whole accounts for no more than 6% of the workforce. In the fishery sector, foreign workers play an important role, accounting for about 75% of the total workforce in the sector (Libyan Ministry of Agriculture 2008). However, the data analysis revealed that marine fish farming is not only suffering from a lack of skilled workers (see section 4.3.2), it is also suffering from a lack of workers in general as it seems that only a low percentage of people are employed in the sector, which forces the sector to rely on foreign workers. The site visit, for example, showed that farms rely on Egyptian workers to operate that particular farm.

In conclusion, the main targets of agricultural development, including marine fish farming, have not been fully achieved. Marine fish farms have failed to increase fish production; thus, they have failed to contribute to realizing self-sufficiency; even though some of the agricultural production areas have succeeded in achieving certain targets, the sector as a whole has not. In particular, marine fish farms have failed to contribute to economic diversification, and the sector's contribution to the GDP is insignificant. Marine fish farming has also failed to contribute to increasing the number of workers in the agriculture sector.

## **5. 4. Conclusion**

In conclusion, the case study suggested that the conceptual framework required to be revised, taking the issues arising from the case study analysis into account. This revision was expected to provide a better perspective on the agriculture development process, including the marine fish farming sector, in order to answer the research questions.

Based on the results chapter and discussion chapter, the propositions in regard to the key drivers presented in the conceptual framework have been confirmed. However, new elements regarding the obstacles hindering development emerged. Certain propositions of the conceptual framework needed to be modified based on the findings of the data analysis, while others have been confirmed. Hence, with regard to the conceptual framework the researcher compiled the following points:

- The three propositions that were presented in the conceptual framework as the key drivers of agricultural policies: oil existence as a huge but non-renewable income resource, political ideology involvement in the socio economic development process, and adoption of a planned system to manage the economy under a dominant public sector, are confirmed as the key driver of the development of the marine fish farming sector in particular and thus, by wider implication, the development of the agriculture sector.

- There are other obstacles facing the agriculture sector in addition to the ten points presented in the conceptual framework, which emerged from the case study. These four new issues include:

- Lack of rural development programs and implications,
- Lack of maintenance of the existing infrastructure,
- Weak role of the research centres,
- Weak role of agricultural advisory centres.

- Although the case study on marine fish farming successfully presented the themes of the conceptual framework regarding the obstacles facing the development process, there are specific problems in that it only presented the obstacles facing the practising of marine fish farming in particular. This can be interpreted via the view that despite there being similar impediments that hinder the development of all agricultural sectors, there are some impediments that are particular to each sector and cannot be generalized to others. However, based on the current research findings, particular obstacles facing marine fish farming are:

- Lack of interest from the local community and the reluctance to engage in the activities of fishing and fish farming,
- Technical problems related to the functions of farming fish.

- The agriculture sector, including marine fish farming, failed to realize the required development as reflected by its failure to achieve the core targets of development: realizing self-sufficiency in basic food needs, improving the growth rate in order to contribute to GDP, and contribution to providing job opportunities.

The researcher concluded that the identification of the reasons behind the failure of the development of the marine fish farming sector specifically, and the reasons that

hindered the development of the agriculture sector generally, cannot be summarized in a list of obstacles and impediments to development without indicating the elements of imbalance in the development drivers themselves; these are political ideologies and the implications of implementing a planned economy on the basis of an existing non-renewable oil resource.

The potential explanation for the failure, and hence the answer to the research question, was incorporated into the conceptual framework that was examined through the case study. The drivers and the obstacles were confirmed by means of testing the conceptual framework. The tested conceptual framework, briefly, suggests that the failure of development occurred because the involvement of political ideologies in economic decisions, along with the implications of implementing a planned economy on the basis of huge revenue deriving from non-renewable oil resources, affected the government's agricultural policies. On the other hand, the implementation of agricultural policies for development faces a number of barriers that hinder the sector from achieving the development specified by the targets. These barriers can be classified into general barriers that face all agricultural sectors and specific barriers that affect particular sectors of agriculture individually.

Excluding the ecological factors, the research reached a conclusion that explains the failure in achieving the targeted development objectives of the agriculture sector and that clarifies the incomprehensible government efforts to improve the agriculture sector (see section 4.5. in chapter 4), as presented in the final results. The researcher concluded that the declared desire of the political ruling elite to develop the agriculture sector was merely political propaganda, to achieve personal benefits. There was no real motivation on the part of the leadership to apply the development plans efficiently. This is apparent from the slogan on food self-sufficiency repeated by Qaddafi since the 1970s, which had still not been implemented at the time of his fall in 2011. The FOA has announced in more than one of its reports that Libya is unable to realize full food self-sufficiency due to ecological factors; hence, it would appear that such an objective is unattainable, at least at the present time.

The researcher concluded that the continual flow of huge oil revenues played a key role in bridging the gap between the public policies for the benefit of the nation and the personal interests of the individuals in power. It also played an important role in

concealing the weaknesses of the non-oil sector by funding its activities from a state treasury that was fed by revenues of oil. This is clear from the continual spending on the agriculture sector regardless of the economic efficiency of this spending, and in the absence of any effort to monitor and follow up these expenditures. This has led to the inefficient exploitation of the government subsidies, which take other paths, determined by the spread of corruption and mismanagement, rather than following the path of agricultural development.

The researcher detected other negative effects of oil. In Libya, as one of the developing countries ruled by totalitarian regimes, like most of the Middle East countries, the issues relate not only to Dutch disease, but also to the manner in which ruling elites control natural resources such as oil, and thus hinder the development of the economic sectors.

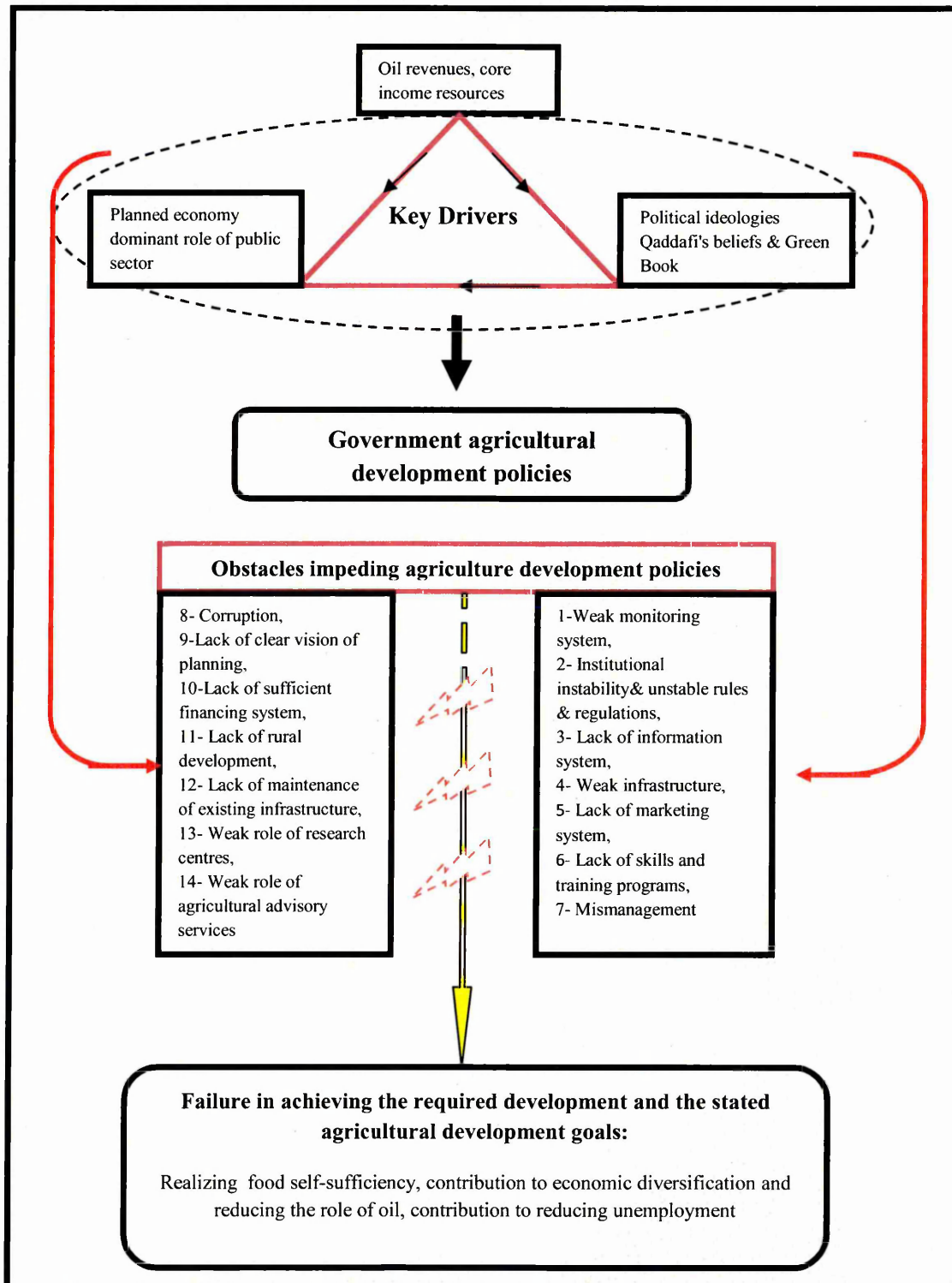
In addition to the two previous drivers, the researcher inferred from data analysis (4.3.1) that the implications of planned economy (5. 1), whereby the state controls most of the economic activities and the private sector is subjected to bottlenecks and restrictions imposed by the government, have resulted in the imposition of further developmental difficulties, reflected in the inefficiency of the public sector in managing the economy. It is fair to say that the adoption of this system of planning economy was in accordance with a decision by Qaddafi based on his thoughts presented in the *Green Book*, as concluded by the researcher from her secondary and primary research.

These drivers contributed to the emergence of several imbalances in the economic structure which led to the reduction in the agriculture sector production due to factors such as mismanagement, instable institutions, and weak monitoring systems, which characterized the public sector administration. The result was an increase in corruption levels at the various levels of government. The researcher also concluded that the agriculture sector suffers from additional problems such as lack of sufficient infrastructure and related facilities, lack of financing, marketing and information systems as well as insufficient work force; these problems are in addition to the weak role of the research centres, lack of rural development, and the shortcomings of the agricultural advisory services.

The final conclusion, which completes the answer to the research question, is that marine fish farming is facing more difficulties than the other agricultural sectors, which

have worsened its situation and have caused the failure of its development; these include the technical problems facing the farmers during farming operations such as the feeding process, and the availability of fodders, also the control of water conditions...etc. Another concern arising from the current research relates to cultural difficulties.

**Figure (5.1) the revised conceptual framework explaining the process of agriculture development:**



The researcher concluded that there is lack of interest in fishing and a reluctance on the part of the local community to engage in fishing and fish farming. Most of the agricultural population in the rural areas tend to work in cultivation and pastoral occupations. This is basically due to the character of the Libyan culture, not just in terms of practising fish farming but in consuming fish as well; the researcher concluded that fish comes last in the Libyan diet after lamb, chicken and beef. At the beginning, this factor was not considered as important to the development of marine fish farming but its importance emerged later, as was pointed out in the discussion.

The case study analysis confirmed the importance of the elements (Drivers and Obstacles) identified in the conceptual framework in explaining the process of agricultural development; hence, it is possible to apply this framework to other agriculture sectors, taking the characteristics of each particular sector into account. So it is possible to say that the revised conceptual framework presents below answers the research questions, in terms of the agriculture sector in general and the marine fish farming sector specifically. The framework explains the reasons behind the failure of the marine fish farming sector. It can also explain similar issues relating to the drivers and the obstacles that hinder the development of other agricultural sectors. In conclusion, and according to the discussion conducted in the previous chapters (4 and 5), the researcher has revised the conceptual framework as in figure (5.1).

# **Chapter Six: Conclusion and Recommendations**

## **6.0. Introduction**

This chapter draws together the key debates or arguments developed within this thesis and presents recommendations for further research. It also provides a summary of conclusions that answer the research question, and identifies the examined themes of the proposed conceptual framework. Furthermore, it specifies the contribution this research has made to our knowledge and understanding of the phenomena under analysis.

### **6. 1.        Research Summary**

#### **6.1.1.      Developing the Conceptual Framework From the Literature Review**

The researcher developed a conceptual framework through reviewing literature that has discussed the concept of agriculture development in terms of a wider concept of economic development, with the aim of explaining the reasons behind the failure of the agriculture sector in Libya to achieve the targeted development and to realize the constant goal of self-sufficiency for most of the products, in spite of the high government spending on agriculture, whether on the development plans or on operational expenditure.

To understand what the real picture behind the agricultural policies and the development issues, the researcher decided to review the story of agricultural development in Libya from the beginning. Before that, the researcher delved into the roots of agriculture development, turning back to economic development in general, highlighting the economic and political changes that have determined agricultural development paths in the different historical periods.

The researcher extended the literature review by investigating articles and papers from beyond Libya's borders, and highlighting similar experiences in other countries, focusing on the implications in socialist countries of developing oil resources to serve the agricultural sector. Also, the researcher shed light on the state of the agriculture sector in the countries of the MNA region. The aim was to expand the theoretical horizons of the researcher and to investigate the similarities and differences between Libya and other countries. This demonstrated that agriculture development in Libya is not an extreme example, but it is only an experience, that has different dimensions and is affected by various factors, which may vary from or resemble the experiences of other countries.

From the literature review, the researcher developed a conceptual framework to illustrate the agriculture development process in Libya and thus provide a proposed answer to the research question. The framework identified three key drivers for agricultural development policies; these are: the existence of oil, the political ideologies, and the planned economic system. The framework also assumed that these drivers have created a number of problems, in addition to the difficulties emerging from the literature review, which have already characterized the Libyan economy.

Through the discussions and arguments on the literature viewpoints, the researcher pinpointed the following problems that have hindered the development of the agriculture sector: corruption, mismanagement, lack of monitoring system, lack of clear vision in planning, lack of information systems, lack of efficient financing system, and lack of skilled workers, lack of stable authorities, inefficient marketing system, and weak agricultural infrastructure. The conceptual framework illustrated that these problems have impeded agriculture development, and hindered the sector's achievement of the development targets. The most prominent indicators identified from the literature were the low contribution to GDP, the low contribution to covering the local demand for food, and the decline of the workforce engaged in agriculture.

### **6.1.2. Examining the Conceptual Framework**

The researcher, from the beginning, clarified that the ecological factors would not be considered in this research, with the aim of giving more emphasis to the non-ecological

factors that affect the development of the agriculture sector. However as it was difficult for the researcher to knock on all the doors of the agriculture fields, the researcher decided to knock on only one door, which was that of marine fish farming, hoping that it could reflect the situation of what has been going on behind the scenes in the story of agricultural development in Libya.

The researcher, on several occasions, has justified the choice of the marine fish farming sector as a case study for this research; however, briefly, the marine fish farming sector is considered a good case study because it is one of the lowest performing agricultural sectors in terms of its growth and is the lowest in terms of its contribution to the total agriculture production. In addition, the choice of this case was expected to help the researcher avoid getting involved in the ecological factors, such as the scarcity of water, the lack of arable lands and the drought factor. These factors have not been considered in this research, despite the significant role they play in the agriculture sector in general. The researcher's aim was to focus on the other factors involved, and thus to achieve more objective assessment of them than if the ecological factors had been involved. The researcher does not intend to imply that ecological factors are not important, as they were excluded from this research only to put more emphasis on the non-ecological factors.

The examination of the conceptual framework was based on the aim of answering the following research question:

❖ Why has the marine fish farming sector failed?

This question, in fact, emerged when the researcher decided to use the marine fish farming sector as a case study. Investigation of this specific research question would provide an explanation of the research's main concern of the delay of agricultural development, through the researcher providing a proposed explanation through the conceptual framework developed from the arguments of the literature review. The conceptual framework was examined through the adoption of a case study methodology. Three tools for collecting the data were employed: structured interviews, semi-structured interviews and documentation. The variety of the data resources supported the triangulation of the arguments, aiming to answer to the research question. Also the multiple sources of data supported the discussion of the same issues from different

perspectives. Narrative approach was used to analyse the qualitative data, using the thematic technique to present the findings of the data analysis.

The researcher's reliance on qualitative research was based on the type of data required to test this framework. The researcher adopted deductive reasoning to examine the elements of the conceptual framework, aiming to explain and to analyse the phenomena of failure in the development of the marine fish farming sector as a case study, linking it to the agricultural sector as a whole to offer an explanation for the delay in the growth of agriculture in general.

Having concluded this research, based on the final findings, the researcher believes that the case study of marine fish farming guided her to achieve the research aim:

❖ Investigating the failure of agriculture development in Libya in the context of oil wealth and the prevailing socio-political culture, through an in depth investigation of the failure of marine fish farming sector.

### **6.1.3. Conclusions Based on Examination of the Conceptual Framework**

Having employed the chosen methodology and applied the framework to the case study of marine fish farming, and through the analysing of data collected on the case study, including the drivers and the obstacles of the development process of agriculture sector in Libya, The researcher arrived at the following general conclusions:

- The availability of oil as a non-renewable source of revenue and the ways of exploiting it are key drivers that affect government policies. It has a negative role in the development process of agricultural sectors. These negative impacts reflect the high dependency on oil revenues to fund not just the development process but also the operation of the agricultural sectors. Also, these negatives reflect the ignorance of the government about improving the efficiency and the productivity of agriculture, confirming the existence of Dutch disease symptoms in the Libyan agriculture sector.

- Adopting a planned economy involves certain criteria, the main one being public sector domination over the economy at the expense of the private sector. This has had a negative impact on the development process as the public sector in Libya is characterized by low efficiency and the spread of bureaucracy and corruption (section 4.3.1).
- The political ideologies that the concepts and beliefs of Qaddafi represent, have affected the agricultural policies. In particular, the ideologies related to realizing self-sufficiency are merely political propaganda and have no relevance to economic considerations. This conclusion was evidenced by the gap between the development programs announced by the government in its reports and the actual or implied development of the sector.
- The ten core obstacles incorporated from the literature review into the framework were confirmed by conducting the marine fish farming case study; however, several new obstacles emerged the case study to be added to the barriers presented by the literature.
- There are barriers that are found to apply to particular sections of the agricultural sector that are also a result of the failure of agricultural policies and of other general barriers identified by the conceptual framework. This conclusion evidenced by the case study's revelation of certain problems facing marine fish farming in relation to the local culture in practising fish and fish farming activities, and others related to technical issues.

In general conclusion, the researcher is convinced that the revised conceptual framework (figure 5.1) provides an explanation of the deteriorating state of agriculture, and the failure of the development process to achieve the stated targets.

## **6. 2. Significance and Contribution of the Study**

This research is important not only for the Libyan context but also for the wider world context. In relation to the Libyan context, this research explains the reasons behind the delay of the agriculture sector in achieving the main targets of

development. These explanations could provide the decision makers and the planners of the future development of agriculture with significant perspectives on the difficulties and obstacles that hinder the development processes. The researcher believes that diagnosing the problems is the most important step towards finding solutions. Therefore, the main contribution of this research is the Conceptual Framework developed to explain the process of development of agriculture, excluding ecological drivers; this framework could be employed in different political and economic situations where non-renewable natural resources are involved.

The discussion of the drivers together with the obstacles that impede the agriculture development serves as a lesson that can be learned from Libya's experiences as a Third World country whose economy is characterized by significant dominance of the oil sector and centralized state rule. This state, accompanied by the existence of a dictatorship government, has caused insufficient exploitation of the oil revenues, which has hindered development, because of the manner in which the people in top positions have exploited and utilized these revenues; their slogans are mainly for political propaganda and personal benefit. Countries that have similar circumstances to those of Libya, especially in the Arab World and the Middle East, might have similar drivers and problems related to the development of the non-oil sectors, but they might identify these problems and drivers in different ways.

The other contribution of this research to the Libyan context is that it sheds light on unrecognized activities which have strong potential to play an important role in the future of the Libyan economy. In fact, the lack of information and proper databases about the marine fish farming sector has discouraged many researchers from investigating it. However, the researcher believes that the study could provide a scientific background that would encourage other researchers to look at this sector from different perspectives.

Another potential contribution of this research relates to the methodology. Due to the changes in the political environment in Libya after the 17th of February Revolution, the researcher decided to revise the data obtained from the resources by re-interviewing some of the key participants. Though this initiative was very limited in terms of the number of people who were re-interviewed and the number of questions re-asked, it signals the considerable influence of the political environment on the

data's credibility and validity. The participants did not change their opinion regarding the issues related to the political administration but they, in fact, answered some questions they had evaded in the first meeting and they also elaborated on the answers to some questions, giving more details about their real opinions. So, the regime does not change peoples' thoughts and beliefs; it only suppresses and subdues them.

### **6.3. Recommendations**

The recommendations of this research fall into four categories:

#### **6.3.1. Recommendations for Further Research**

1. Further research studies are required to investigate the effect of the cultural factors on the development and the growth of the marine fish farming sector.
2. Further research studies need to be conducted to explore the socio-economic potential of the marine fish farming sector and its effect on the Libyan economy.

#### **6.3.2. Recommendations for Developing the Agriculture Sector**

1. New agricultural policies must focus on striking a balance between the limited agricultural resources available and the targets of development in addition to the optimal and sustainable exploitation of the limited agricultural resources, and transformation of the sector from subsistence, traditional agriculture to commercial farming.
2. Development of institutions needed for the optimal operation of the sector, decision making, policy formulation, financing, follow-up and monitoring, etc.
3. Enhancement of stability by issuing rules, laws, and all the related procedures which would encourage the growth and the development of the agriculture sector .
4. Review of government policies toward agricultural marketing and improving the marketing system and infrastructure. Opening the sector to the international market and encouraging competition.
5. Promoting the role of the financing institutions with respect to providing loans and facilities to the farmers, and developing financing policies to serve the development of the sector. The government should also change its policies on providing Islamic accounts side by side with other types of accounts.
6. Constructing a statistics institute and making information widely and easily available, developing information systems and databases and strengthening the agricultural research centres.

7. Adopting training programs for the workers to sharpen the farmers' skills.
8. Granting the private sector more opportunities and encouraging them to take active roles in investing in the agricultural projects by reducing the complicated procedures imposed on private businesses.
9. Improvement of the rural infrastructure (Physical, social and economic infrastructure)

### **6.3.3. Recommendations for Developing the Marine Fish Farming Sector**

1. There is a need for major revision and upgrading of the legislation pertinent to aquaculture, as indeed is the case with the body of national fisheries legislation as a whole.
2. Planners should adopt a cautious and gradual approach to the development of fish farming capacity in the country, both in terms of physical installations and the provision of technical support agencies.
3. Transferring knowledge and technology through cooperative projects and programs with developed countries in marine fish farming, sending Libyans for training to these countries to acquire the knowledge and experience directly from the pertinent fields and allowing foreign investors to import their knowledge and technology to Libya.
4. Encouraging investments that involve marine fish farming activities and enhancing the role of the private sector, reducing the restrictions imposed on it.
5. Promoting the local communities' involvement in these activities, whether through monetary incentives or other kinds of support.
6. Securing constant technical support for fish farmers and developing a plan of support for the private sector, through the preparation of sessions and periodic visits to the farms to provide technical consultations
7. Provision of fingerling locally instead of importing them for technical and economic reasons
8. In the future, plans must be drawn for an inventory of raw materials that go into the fodder processing, including fish and vegetable protein, animal diet and the introduction of fish, to ensure the continued success of the fish farming projects
9. Rehabilitation of the Marine Biology Research Centre (MBRC) and establishing other branches in different coastal areas

10. Encouraging the industries that depend on fish production, and maintaining the existing fish manufactories.

## **6. 4. Conclusion**

To sum up this chapter, the researcher has adopted qualitative research procedures investigating the failure of marine fish farming in Libya as a case study that reflected the difficulties facing the agriculture sector. The study concluded there were many problems, related to the existence of high oil revenues that were not allocated to agricultural development, to the ambiguous propaganda of the political ideologies toward agriculture development, and to the adoption of planned economy. These factors together with others have created a number of barriers that have obstructed agriculture sector growth. It was anticipated that the oil resource could bring about a revival in the country's development but this has not been realized for three reasons: the inefficient use of the oil resource, its exploitation by the ruling circles for personal benefit, and the heavy reliance on its revenues as a main source of income which has led indirectly to weakening the efficiency of the other production sectors, the so-called Dutch Disease.

Adopting the planned economy system allowed the government to control most of the economic institutions. Though this system has succeeded in some countries and failed in others, the public sector in Libya has suffered from numerous problems, such as those relating to bureaucracy, centralization, administrative and financial corruption, poor performance and productivity. All of these factors as well as others have resulted in an inefficient non-oil economy since it relied in the first place on an inefficient public sector. Despite the introduction of certain reforms to increase the contribution of the private sector, these reforms have not met the required standards. Although most of the political ideologies looked promising in terms of creating a strong economy in which all would participate equally, a self-sufficient economy that could rely on its non-oil production sectors to produce what was needed, the reality is different. The ideologies have not been realized: they have remained as slogans despite the verbal emphasis of the decision makers or their recourse to them on many occasions. From the researcher's perspective, this is only political propaganda that lacks the tools of implementation.

The marine fish farming sector, with its low performance, reflected these problems in addition to two other related concerns: technical issues, and negligence of the local communities compared to the other agricultural sectors, despite the high potential of the marine fish farming industry and its importance to the national economy.

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**Note: The reference presented in this thesis is based on The Harvard - SHU style:**

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## 8.0. Appendixes:

### 8.1. Appendix 1: Semi structured interviews:

#### 8.1.1. Semi structured interviews (original Questions by Arabic language)

##### (1) وزير الزراعة والثروة البحرية:

- السؤال 1: ما هو عدد الوحدات الإدارية أو الهيئات التي تقع ضمن نطاق ادارة اللجنة الشعبية العامة للزراعة او (وزارة الزراعة)؟
- السؤال 2: كم مرة تم تغيير هذا التركيب الاداري خلال فترة عملك، وأيضا قبل ذلك؟
- السؤال 3: ماهو حجم الإنفاقات المالية على قطاع الزراعة منذ السبعينات ( أجمالي تقديري) أو (سني تقديري)؟
- السؤال 4: ماهي أهم أوجه استخدام هذه الاموال عادة داخل القطاع؟ ولمن يكون النصيب الاكبر؟
- السؤال 5: من أين يتم تمويل مشروعات قطاع الزراعة ويرامجها التنموية؟
- السؤال 6: لماذا لم تحقق خطط التنمية الزراعية الاهداف التي وضعت من أجلها؟ مثلا الاكتفاء الذاتي، تنويع مصادر الدخل.
- السؤال 7: ماهي في نظرك اهم العراقيل التي تقف في وجه تحقيق التنمية المطلوبة في قطاع الزراعة؟
- السؤال 8: ماهو دور السياسات الحكومية في تنمية الزراعة في ليبيا بشكل عام ؟
- السؤال 9: ما هو دور الحكومة في دعم وتنمية قطاع الاستزراع السمكي (تربية الاحياء المائية)؟
- السؤال 10: البعض يعتبر قطاع الاستزراع السمكي نشاط فاشل ولا يصلح في ليبيا. في رأيك ما هي معايير فشل ونجاح هذا النشاط في ليبيا في ظل المعطيات الاقتصادية والسياسية والبيئية التوفرة في ليبيا؟
- السؤال 11: ما مدي مساهمة القطاع في الانتاج السمكي الاجمالي في ليبيا؟
- السؤال 12: هل تعتقد ان القطاع الخاص يمكن أن يكون له دور في تنمية نشاط الزراعة السمكية؟ ما هي التسهيلات التي منحتها وزارة الزراعة للمستثمرين المحليين في هذا النشاط؟
- السؤال 13: هل للسياسات الحكومية تأثير على تنمية هذا النشاط؟
- السؤال 14: هل فتحتم المجال أمام المستثمرين الاجانب في نشاط الزراعة السمكية؟
- السؤال 15: لقد تلقت وزارة الزراعة في 1994 حوالي 65 طلب انشاء مزارع سمكية خاصة؟ هل تعلم ماذا حدث في هذه الطلبات ولماذا لم يتم الموافقة عليها؟
- السؤال 16: ماهي من وجهة نظرك اهم العراقيل التي تقف امام تنمية قطاع الاستزراع السمكي؟
- السؤال 17: ( في مقابلة مع أحد المشرفين علي مزرعة فروة، أن هناك جهات غير معلومة (شركات خاصة علي الارجح) تتسلم الانتاج مجانا وبدون اي مستندات) هل يمكن القول أن هناك فساد اداري أو مالي في تسيير هذا النشاط فيما يتعلق بالمزارع السمكية التابعة للقطاع العام؟
- السؤال 18: هل تعتقد أن وزارة الزراعة قدمت المطلوب منها تحديدا في مجال تنمية قطاع الزراعة السمكية؟ (باختصار صف لنا اهم ما قمتم به من نشاطات تخدم القطاع)
- السؤال 18: في النهاية هل تعتقد أن قطاع الزراعة السمكية قطاع واعد ويمكن أن ينجح مستقبلا؟

##### (2): مدير المصرف الزراعي ( فرع الجبل الأخضر):

- س 1: منذ متى تم إنشاء المصرف الزراعي في ليبيا؟ وما هي أهم الأعمال المنوطة به أو الأغراض التي أنشئ من أجلها؟ وهل ادارة المصرف مركزية ام انها تتبع جهة اخرى؟
- س2: ما هي السياسة العامة للمصرف فيما يخص مساهمته في دعم قطاع الزراعة في ليبيا؟
- س3: من هي الجهة المسؤولة عن تمويل المصرف؟ ام انه ممول ذاتيا؟
- س4: نعلم أن المصرف يقوم بمنح القروض الزراعية بغرض تشجيع الاستثمار في القطاع الزراعي. ماهي أنواع القروض التي تقومون بمنحها؟ وماهي أهم شروط منحها؟
- س5: ماهي قيمة القروض ؟ وكم نسبة الفائدة على القروض؟

- س6: ماهو اجمالي عدد القروض الممنوحة منذ افتتاح المصرف؟ وماهي اجمالي قيمتها؟
- س7: هل يتابع المصرف كيفية التصرف في القرض بعد منحه للمزارع ( اي هل هناك مراقبة واشراف علي استخدام القرض)؟
- س8: هل تعتقد ان القروض الزراعية ساعدت المزارعين في تنمية نشاطاتهم الزراعية؟ ( الي اي مدى...؟)
- س9: يشتكي الكثير من المزارعين من انخفاض قيمة القروض وصعوبة شروط السداد وانها لا تساعد في حل مشاكلهم. ما رأيك في هذا القول؟
- س10: هل وضع المصرف أي آليات لمنح مزيد من التسهيلات للمزارعين؟
- س11: هل منحتم قروض في مجال نشاط الاستزراع السمكي؟ وهل هذا النشاط اصلا يقع ضمن تخصصاتكم؟
- س12: هل فروع المصارف في المناطق الاخرى منحت قروضا في مجال الاستزراع السمكي؟
- س13: هل تلقيتم اي توجيهات ( من وزارة الزراعة مثلا) بتسهيل منح القروض للمزارعين المستثمرين في نشاط الاستزراع السمكي؟
- س14: ما هو حجم الاقبال من المزارعين على الحصول على قروض من المصرف الزراعي؟
- س15: هل تعتقد أن هناك مزارعين يقومون باستخدام القروض الزراعية في نشاطات غير زراعية؟
- س16: هل تعتقد ان المصرف قادر على توفير خدمات أكثر وافضل للمزارعين؟
- س17: ما هي اهم القيود التي تعيق عمل المصرف الزراعي؟ سواء من ناحية السياسات الحكومية أو القدرات التمويلية او حتي الكفاءات الادارية ؟
- س18: نتيجة للمعتقدات الدينية فإن الكثيرين يعزفون عن أخذ قروض ربوية من المصارف. ما مدي تأثير ذلك على نجاح المصرف في ادائه لعمله؟ وهل هناك أي آليات لحل مثل هذه المشاكل؟
- (3): خبير في نشاط الزراعة السمكية والمشرف على برنامج المسح الشامل للمزارع السمكية في ليبيا:**
- س1: منذ متى بدأ نشاط الزراعة السمكية في ليبيا؟
- س2: ما هي أهم أنواع النشاط ( استزراع في مياه عذبة، مياه البحر...الخ)؟
- س3: كم عدد المزارع السمكية في ليبيا؟ هل يمكنك توضيح كم كان العدد بداية النشاط وما هو العدد الحالي لاجمالي المشروعات سواء التابعة للقطاع العام أو القطاع الخاص؟
- س4: ما هي أهم الأنواع المستزرعة؟ وعلى أي أساس تم اختيارها للاستزراع في ليبيا؟
- س5: ماهي أهم أنظمة الاستزراع السمكي المطبقة في ليبيا؟
- س6: هل يتم إنتاج الاصبعيات والزريعة محليا أو يتم استيرادها من الخارج؟
- س7: هل يواجه المزارعون صعوبات في الحصول على الزريعة والاصبعيات، سواء من السوق المحلي او السوق الاجنبي؟
- س8: هل هناك تقنيات في مجال الاستزراع السمكي يتم استيرادها من الخارج؟
- س9: هل تستعين الجهات المختصة بخبرات اجنبية لتطوير قطاع الزراعة السمكية ؟
- س10: هل للحكومة دور في تطوير القطاع؟ ما هي اوجه هذا الدور ( من ناحية السياسات العامة، التمويل، التدريب، البحوث...الخ)؟
- س11: يعتبر الكثيرين أن المزارع السمكية نشاط اقتصادي فاشل في ليبيا لأنها لم تتمكن من تحقيق مستهدفاتها منذ انشائها في السبعينات. هل تتفق مع هذا القول؟
- س12: برأيك... لماذا لا تعمل المزارع السمكية بالكفاءة المطلوبة؟ وما هو سبب فشل الكثير من المزارع وتوقفها عن العمل نهائيا؟
- س13: ما هو دور القطاع الخاص في نشاط الاستزراع السمكي؟
- س14: هل تعتقد أن هناك فرق في الكفاءة الانتاجية ما بين المزارع السمكية التابعة للقطاع العام وتلك التابعة للقطاع الخاص؟
- س15: هل هناك مزارع تابعة لمستثمرين اجانب؟
- س16: هناك مزارع سمكية تم انشاؤها وتزويدها بالمعدات المطلوبة التي تكاف الدولة مبالغ طائلة ولكنها لم تدخل حيز التنفيذ وراينا الكثير منها وقد أصبحت شبه مدمرة من طول فترة اهمالها. في رأيك ما هو السبب وراء ذلك؟

س17: ما هي في رأيك اهم الدوافع وراء اهتمام الدولة بقطاع الاستزراع السمكي واستمرار دعمه رغم التدني المستمر في كفاءته الانتاجية؟

س18: هل تعتقد أن نشاط الزراعة السمكية ساهم في زيادة الانتاج السمكي في ليبيا؟

س19: هل تتوقع أن يزداد الانتاج من المزارع السمكية في ظل المعطيات الحالية من ضعف شديد في كفاءة القطاع؟

س20: هل يمكن اعتبار ان الزراعة السمكية في ليبيا عبارة عن مجرد تجربة أو نشاط تحت التجارب ولا يمكن اعتبارها نشاطا اقتصاديا متكامل؟

س21: ما هي في نظرك اهم الفوائد التي يمكن أن يحققها نشاط الزراعة السمكية اذا ما تم تطويره وتنميته بالمستوي المطلوب، سواء من الناحية الاقتصادية او الاجتماعية او البيئية؟

س22: عندما انظر الى الساحل الليبي الذي يناهز طوله الالفى كيلومتر. اتساءل عن الجدوي الاقتصادية من انشاء مزرعة سمكية على الشاطئ أو في الدواخل... والبحر ملي بالأسماك التي فقط تحتاج الي صياد ومركب وشباك... للحصول عليها... ما رأيك في هذا القول؟

س23: مالذي ينبغي القيام به لانقاذ قطاع الزراعة السمكية من الانهيار؟ ومن هي الجهات المسؤولة عن ذلك؟

س24: الكثيرون يعتبرون ان الاستثمار في مجال الزراعة السمكية مربح ولكن يبدو ان الاقبال عليه من قبل المستثمرين ليس كبيرا وهذا واضح في عدد المزارع التابعة للقطاع الخاص على مستوى ليبيا كلها. لماذا في رأيك هذا العزوف عن الاستثمار في القطاع؟

س25: باعتبارك خبير في الزراعة السمكية هل تقومون بتقديم ارشادات فنية للمزارعين؟ وهل ترى ان هناك ايجابية في التعاطي مع هذه الارشادات ؟

س26: كيف يمكن الاستفادة من تجارب الدول المتقدمة في هذا المجال في تنمية الزراعة السمكية في ليبيا؟

س27: ما هو دورك كباحث وخبير في المجال في تنمية وتطوير وانجاح نشاط الزراعة السمكية في ليبيا؟

س28: ما هي حظوظ نشاط الزراعة السمكية في النجاح في المستقبل؟

(4): خبير في نشاط الزراعة السمكية والمسؤول عن الهيئة الوطنية لتربية الاحياء المائية (تاجوراء)

س1: متى أنشئ هذا المركز وماهي أهم الأعمال المنوطة به؟

س2: ما حجم امکانيات التي منحتها لكم وزارة الزراعة وهل تعتبرها كافية لتمكنكم من اداء عملكم بكفاءة؟

س3: كم عدد المزارع السمكية في ليبيا؟ هل يمكنك توضيح كم كان العدد بداية النشاط وما هو العدد الحالي لاجمالي المشروعات سواء التابعة للقطاع العام أو القطاع الخاص؟

س4: من خلال الزيارات الميدانية التي تقومون بها من وقت لآخر للمزارع في ليبيا. هل أنتم راضون على مستوى أدائها؟ ولماذا؟

س5: ماهو مدي التعاون والتكامل بينكم وبين العاملين في مركز بحوث الاحياء البحرية؟

س6: هل تعتقد أن نجاح الزراعة السمكية في ليبيا يحتاج الي مجهودات أكبر مما هو متوفر في ليبيا؟

س7: يواجه المزارعون صعوبات في الحصول على الزريعة والاصبعيات، سواء من السوق المحلي او السوق الاجنبي. هل قدمت ما يساعد المزارعون في هذه القضية؟

س8: هل لكم دور في الحصول على تقنيات في مجال الاستزراع السمكي من الخارج؟

س9: هل تستعين الجهات المختصة بخبرات اجنبية لتطوير قطاع الزراعة السمكية ؟

س10: هل للحكومة دور في تطوير القطاع؟ ما هي اوجه هذا الدور ( من ناحية السياسات العامة، التمويل، التدريب، البحوث...الخ)؟

س11: يعتبر الكثيرون أن المزارع السمكية نشاط اقتصادي فاشل في ليبيا لأنها لم تتمكن من تحقيق مستهدفاتها منذ انشائها في السبعينات. هل تتفق مع هذا القول؟

س12: برأيك... لماذا لا تعمل المزارع السمكية بالكفاءة المطلوبة ؟ وما هو سبب فشل الكثير من المزارع وتوقفها عن العمل نهائيا؟

س13: ما هو دور القطاع الخاص في نشاط الاستزراع السمكي؟

س14: هل تعتقد أن هناك فرق في الكفاءة الانتاجية ما بين المزارع السمكية التابعة للقطاع العام وتلك التابعة للقطاع الخاص؟

س15: هل هناك مزارع تابعة لمستثمرين اجانب؟

س16: هناك مزارع سمكية تم انشاؤها وتزويدها بالمعدات المطلوبة التي تكلف الدولة مبالغ طائلة ولكنها لم تدخل حيز التنفيذ ورائنا الكثير منها وقد أصبحت شبه مدمرة من طول فترة اهمالها. في رأيك ما هو السبب وراء ذلك؟

س17: ما هي في رأيك اهم الدوافع وراء اهتمام الدولة بقطاع الاستزراع السمكي واستمرار دعمه رغم التذني المستمر في كفاءته الانتاجية؟

س18: هل تعتقد أن نشاط الزراعة السمكية ساهم في زيادة الانتاج السمكي في ليبيا؟

س19: هل تتوقع أن يزداد الانتاج من المزارع السمكية في ظل المعطيات الحالية من ضعف شديد في كفاءة القطاع؟

س20: هل يمكن اعتبار ان الزراعة السمكية في ليبيا عبارة عن مجرد تجربة أو نشاط تحت التجارب ولا يمكن اعتبارها نشاط اقتصادي متكامل؟

س21: ما هي في نظرك اهم الفوائد التي يمكن أن يحققها نشاط الزراعة السمكية اذا ما تم تطويره وتنميته بالمستوي المطلوب، سواء من الناحية الاقتصادية او الاجتماعية او البيئية؟

س22: عندما انظر الي الساحل الليبي الذي يناهز طوله الألفي كيلومتر. اتساءل عن الجدوي الاقتصادية من انشاء مزرعة سمكية على الشاطئ أو في الدواخل.. والبحر ملئ بالأسماك التي فقط تحتاج الي صياد ومركب وشباك.. للحصول عليها...ما رأيك في هذا القول؟

س23: مالذي ينبغي القيام به لانقاذ قطاع الزراعة السمكية من الانهيار؟ ومن هي الجهات المسؤولة عن ذلك؟

س24: الكثيرون يعتبرون ان الاستثمار في مجال الزراعة السمكية مربح ولكن يبدو ان الاقبال عليه من قبل المستثمرين ليس كبيرا وهذا واضح في عدد المزارع التابعة للقطاع الخاص على مستوي ليبيا كلها. لماذا في رأيك هذا العزوف عن الاستثمار في القطاع؟

س25: باعتبارك خبير في الزراعة السمكية هل تقومون بتقديم ارشادات فنية للمزارعين؟ وهل تري ان هناك إيجابية في التعاطي مع هذه الارشادات ؟

س26: كيف يمكن الاستفادة من تجارب الدول المتقدمة في هذا المجال في تنمية الزراعة السمكية في ليبيا؟

س27: ما هو دورك كباحث وخبير في المجال في تنمية وتطوير وانجاح نشاط الزراعة السمكية في ليبيا؟

س28: هل تعتقد أن نشاط الزراعة السمكية في ليبيا فرصته في النجاح في المستقبل ممكنة على الرغم مما يبدو عليه وضعه الان؟

#### (5) خبير اكاديمي في مجال الاقتصاد الزراعي:

س1: ماهو وضع قطاع الزراعة بشكل عام في ليبيا؟

س2: ما هو وضع قطاع الزراعة من ناحية الكفاءة الانتاجية؟

س3: ما هو وضع قطاع الزراعة من ناحية الكفاءة الاقتصادية خاصة فيما يتعلق بمدى مساهمته في الدخل القومي والاقتصاد الليبي ككل؟

س4: لماذا يعتبر معدل نمو القطاع منخفضا مقارنة بالقطاعات الأخرى؟ واين يمكن وضعه في ترتيب القطاعات الاقتصادية ؟

س5: ماهي التأثيرات الاجتماعية لقطاع الزراعة ؟ مثلا توفير فرص العمل...التنمية الريفية..الخ.

س6: الكثير من الباحثين يعتبرون أن الايدي العاملة في قطاع الزراعة معضمها اجنبية. وان العمالة الليبية في هجرة مستمرة عن القطاع في صالح القطاعات الاقتصادية الأخرى خاصة الخدمات. ما مدي صحة ذلك...وما هي الاسباب في نظرك؟

س7: الكثير من الباحث يقولون أن راس المال في هجرة مستمرة عن القطاع الزراعي الي قطاعات اقتصادية أخرى؟ ما مدي صحة ذلك ؟ وما هي المؤشرات التي تدل على ذلك؟

س8: تشهد قطاع الزراعة اهتماما كبيرا من قبل الحكومة من خلال حجم الانفاقات الضخمة سواء على برامج التنمية والتطوير او على مستوي تشغيل القطاع. من وجهة نظرك ما هو الغرض من اتجاه الدولة لتنمية القطاع

س9: في ظل ضعف انخفاض الكفاءة الانتاجية للقطاع وفي ظل التزايد المستمر في الانفاق الحكومي عليه. هل تري ان هناك اعتبارات أخرى غير الاعتبارات الاقتصادية تدفع الدولة في اتجاه محاولة تنمية قطاع الزراعة وتطويره؟

س10: بالرغم من الانفاق الذي يصفه البعض بالضعف على قطاع الزراعة. ولكن لم يستطع القطاع تحقيق النمو المطلوب. لماذا من وجهة نظرك؟

س11: يقول الدكتور ابوبكر المنصوري (وزير الزراعة) أن النفط هو في الاساس الممول الرئيسي إن لم يكن الوحيد لقطاع الزراعة. من وجهة نظرك ماهي الجوانب السلبية في وجود مصدر تمويل لا يطالب بارجاع الاموال الممنوحة ولا يراقب كفاءة تشغيلها وأقصد هنا المبالغ التي صرقها ولا تزال تصرفها الدولة علي قطاع الزراعة الذي لم يحقق على الاقل الهدف العام من تنميته وتطويره وهو الاكتفاء الذاتي؟

س12: فيما يخص الزراعة السمكية. نجد أن هناك القليل من الاكاديميين والباحثين في هذا المجال مقارنة بمجالات الزراعة الاخرى. حتي في قسم الاقتصاد الزراعي لا نري حضورا لهذا النشاط في المناهج التعليمية. لماذا في نظرك هذا الاتجاه السلبي نحو هذا التخصص؟

س13: هل تري كأكاديمي متخصص في الاقتصاد الزراعي ان نشاط الزراعة السمكية في ليبيا ذو جدوي اقتصادية؟ وهل كانت الاموال الضخمة التي خصصت للقطاع هي في غير محلها؟ أم أنه قد أسئ استغلالها بطريقة أو بأخرى؟

س14: يصف، الكثيرون القطاع بأنه فاشل الي حد كبير؟ ما رأيك بهذا؟ ولماذا من وجهة نظرك هذه الرؤية؟

س15: ما هي في اعتقادك. أهم مقومات نجاح الزراعة السمكية في ليبيا؟

س16: ماهي في اعتقادك أهم العوامل التي تعرقل تنمية وتطوير الزراعة السمكية في ليبيا؟

س17: ما هو دور السياسات الحكومية في تنمية وتطوير الزراعة السمكية في ليبيا؟

س17: باعتبارك اشرفت على رسائل ماجستير في مجال القروض الزراعية. هل تري أن المصارف الزراعية لعبت دور ايجابي في نشاط الزراعة السمكية؟

س18: هل ساهم القطاع في زيادة الانتاج السمكي في ليبيا؟

س20: هل حقق قطاع الزراعة السمكية اي عوائد اجتماعية ؟ مثلا التنمية الريفية..توفير فرص العمل..الخ

س21: ما هي عوامل جذب الاستثمارات لقطاع الزراعة السمكية والتي يمكن استغلالها لتطوير هذا النشاط؟

س22: هل كانت الدولة جادة في مساعيها لتنمية قطاع الزراعة السمكية ؟ وهل كان ذلك لاعتبارات اقتصادية أو أن هناك اعتبارات أخرى؟

س23: من خلال الاستبيانات وجدنا أن عدد المزارع السمكية في تناقص مستمر سواء كانت عاملة في القطاع العام او في القطاع الخاص. ما السبب وراء ذلك من وجهة نظرك؟

س24: البعض يري ان الزراعة السمكية لا يمكن ان تتجح بغض النظر عن المقومات الطبيعية في ليبيا , ولكن بالنظر الي السوق الليبي المحلي (سواء في مناطق الانتاج او في المدن الكبيرة) ومدي استيعابه لسلعة الاسماك المستزرعة (كميا ونوعيا) ؟ ما هي وجهة نظرك في هذا الموضوع؟

س25: هل تعتقد انه يمكن في ظل معطيات ليبيا ( الجماهيرية) تطوير سوق أجنبي للاسماك المستزرعة؟

س26: ما هو دور مراكز البحوث والجامعات والاكاديميين المتخصصين في تنمية وتطوير الزراعة السمكية في ليبيا؟

## (6) خبير اكاديمي في مجال الاقتصاد الزراعي:

س1: ماهو وضع قطاع الزراعة بشكل عام في ليبيا؟

س2: ما هو وضع قطاع الزراعة من ناحية الكفاءة الانتاجية؟

س3: ما هو وضع قطاع الزراعة من ناحية الكفاءة الاقتصادية خاصة فيما يتعلق بمدى مساهمته في الدخل القومي والاقتصاد الليبي ككل؟

س4: لماذا يعتبر معدل نمو القطاع منخفضا مقارنة بالقطاعات الاخرى؟ واين يمكن وضعه في ترتيب القطاعات الاقتصادية ؟

س5: ماهي التأثيرات الاجتماعية لقطاع الزراعة ؟ مثلا توفير فرص العمل...التنمية الريفية..الخ.

س6: الكثير من الباحثين يعتبرون أن الایدي العاملة في قطاع الزراعة معضما أجنبية. وان العمالة الليبية في هجرة مستمرة عن القطاع في صالح القطاعات الاقتصادية الاخرى خاصة الخدمات. ما مدي صحة ذلك...وما هي الاسباب في نظرك؟

س7: الكثير من الباحث يقولون أن راس المال في هجرة مستمرة عن القطاع الزراعي الي قطاعات اقتصادية اخري؟ ما مدي صحة ذلك ؟ وما هي المؤشرات التي تدل على ذلك؟

س8: شهد قطاع الزراعة اهتماما كبيرا من قبل الحكومة من خلال حجم الانفاقات الضخمة سواء على برامج التنمية والتطوير او على مستوي تشغيل القطاع. من وجهة نظرك ما هو الغرض من اتجاه الدولة لتنمية القطاع

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س10: بالرغم من الانفاق الذي يصفه البعض بالضخم علي قطاع الزراعة. ولكن لم يستطع القطاع تحقيق النمو المطلوب. لماذا من وجهة نظرك؟

س11: يقول الدكتور ابوبكر المنصوري (وزير الزراعة) أن النفط هو في الاساس الممول الرئيسي إن لم يكن الوحيد لقطاع الزراعة. من وجهة نظرك ماهي الجوانب السلبية في وجود مصدر تمويل لا يطالب بارجاع الاموال الممنوحة ولا يراقب كيفة ولا كفاءة تشغيلها

وأقصد هنا المبالغ التي صرفتها ولا تزال تصرفها الدولة علي قطاع الزراعة الذي لم يحقق على الاقل الهدف العام من تنميته وتطويره وهو الاكتفاء الذاتي؟

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### 8.1.2. Translated interviews Questions:

#### With the Minister of Agriculture and Animal and the Marine Resources

Question 1: What are the administrative units or bodies controlled by the General People Agricultural Committee (the Ministry of Agriculture)?

Question 2: How many times has this administrative structure changed during your term of office and before that, too?

Question 3: How many funds have been spent on the agricultural sector from the 1970s (the total estimated) or the (annual estimated)?

Question 4: How are these funds usually exploited within the sector? Who has the biggest share?

Question 5: From where are the agricultural sector projects together with their developmental programs funded?

Question 6: Why have not the developmental agricultural plans realized the objectives set for them such as self-sufficiency and diversifying the resource income?

Question 7: What in your opinion are the main obstacles for realizing the required development in the agricultural sector?

Question 8: What is the role the governmental policies play in agricultural development in Libya generally?

Question 9: What is the role of the government with respect to developing and supporting the aquaculture sector (fish breeding, nurturing water creatures)?

Question 10: Some consider the aquaculture sector as ineffective activity that is not appropriate for Libya. What in your opinion are the criteria for the success or failure of this activity in Libya in the light of the economic, political and environmental data available?

Question 11: To what extent has the Sector contributed to the total aquaculture development in Libya?

Question 12: Do you think that the private sector can play a role in developing the aquaculture activity (fish breeding)? What are the facilities offered by the Ministry of Agriculture to the local investors with respect to this activity?

Question 13: Do the government policies have an effect on developing such activity?

Question 14: Have you opened the doors for the foreign investors in the fish breeding industry?

Question 15: The Ministry of Agriculture received in 1994 approximately 65 requests for establishing fish breeding farms? Do you know what happened to these requests and why have not they been approved?

Question 16: What in your opinion are the obstacles that hinder the aquaculture sector development?

Question 17: during an interview with one of those in charge of the Farwa Farm, it has become apparent that there are unknown agencies (most likely private companies) that get hold of the production free of charge and without any documents). Could one say that there is administrative or financial corruption in managing this sector with respect to fish breeding that belongs to the public sector?

Question 18: Do you think the Ministry of Agriculture exerted the required efforts in the aquaculture sector development? Briefly describe to us the most important measures you have taken to support this sector.

Question 18: Do you think that the aquaculture sector is a promising one which can succeed in the future?

Thank you for responding to our questions and for your constant cooperation and support to students, which displays your dedication and efforts to benefit your students and serve your country.

**With the Agricultural Bank director (Al-Jabal Al-Akhdur Brunch)**

Question 1: When was the Agricultural Bank established in Libya? What are its more important tasks or the purposes for which it is established? Is the Bank administration central or is the bank controlled by another agency?

Question 2: What is the general policy of the Bank with respect to its contribution to the agricultural sector in Libya?

Question 3: Which agency is responsible for funding the Bank? Is it self-funded?

Question 4: You know that the bank offers agricultural loans for the sake of encouraging investment in the agricultural sector. What are the different types of loans you offer? What are the most important conditions for offering them?

Question 5: How much are the loans? What is the rate of interest on the loans?

Question 6: What is the total number of the loans offered since the Bank was established? What is their total value?

Question 7: Does the bank follow up how the loan is spent after it is being delivered to the farmer (Is there follow up with respect to the manner the loan is spent?)

Question 8: Do you believe that the agricultural loans have helped farmers develop their agricultural activities? If so, to what extend?

Question 9: most of the farmers complain from the reduction in the loans value and the conditions for paying back the money and that the loans did not help them solve their problems. What do you think of that?

Question 10: Has the Bank laid the strategies for granting farmers more facilities?

Question 11: Have you offered loans in the field of aquaculture development (fish breeding)? Does this type of activity fall within your capacity?

Question 12: Do the Bank branches in other areas offer loans in the field of aquaculture development (fish breeding)?

Question 13: Have you received any directions from the Ministry of Agriculture, for example, regarding facilitating the process of loan offerings to the investing farmers in the field of aquaculture development ?

Question 14: What is the size of the farmers who would like to benefit from the loans of the Agricultural Bank?

Question 15: Do you think that there are farmers who would like to use the loans for purposes other than agricultural?

Question 16: Do you think that the Bank is capable of offering more and better services to the farmers?

Question 17: What are the most important restrictions that hinder the functions of the agricultural Bank whether they are related to the government policies, the funding capabilities or the administrative competency?

Question 18: Due to the religious regulations, most farmers feel discouraged or hesitant because of the interest they need to pay on the loaned money. How does that impact the Bank while executing its tasks? Do you have any strategies to overcome such problems?

#### **With an academic in the agricultural economics:**

Question 1: How is the agricultural sector in general in Libya?

Question 2: How is the agricultural sector situation from the production proficiency perspective?

Question 3: How is the agricultural sector situation from the economic proficiency perspective especially with respect to its contribution to the Libyan economic income in general?

Question 4: Why is the rate of the sector growth considered low compared to other sectors? Where can it be placed with respect to the other economic sectors?

Question 6: Most researchers view that most the manpower in the agricultural sector are foreign and that the Libyan manpower constantly desert the agricultural sector in favor of the other economic sectors especially the service sector. How far is that true and what are the reasons in your opinion?

Question 7: Many researchers state that the capital constantly dessert the agricultural sector to other economic sectors. How far is this true? What are the indicators to prove that?

Question 8: The agricultural sector witnessed great engagement by the government via the huge expenditures whether on the development projects or on the level of operating the sector. From your viewpoint, what is the purpose of the government for developing the sector?

Question 9: In light of the deterioration in the production proficiency and in light of the constant increase in the governmental expenditure on it, do you consider factors other than the economic considerations that drive the government to develop the agricultural sector?

Question 10: Despite the huge expenditure on the agricultural sector, the sector could not realize the required development. What are the reasons in your view?

Question 11: The Minister of Agriculture, Dr. Abubakir Al-Mansouri, state that oil in essence is the prime sponsor if not the sole one for the agricultural sector; from your own perspective, what are the negative aspects regarding the sponsor source that hinder the return of funds allocated and that do not monitor the manner in which they are spent neither the proficiency of its operation. I mean here the funds

that have been spent on the agricultural sector which does not achieve in the minimum the general objective of the development and that is self-sufficiency.

Question 12: With respect to fish farming, we find few of the researchers and academics in this field compared to the other agricultural fields. Even in the Agricultural Economic Department, this sector is not represented properly in the curriculum. Why in your opinion, do we have such negative view towards this specialization?

Question 13: Do you think as an academic specialized in Agricultural Economy that the activity of fish farming in Libya has an economic value? Are the huge funds allocated to the sector useless or are they misused in one way or another?

Question 14: Most people describe the sector as utter failure. What is your opinion? Why do you adopt such view?

Question 15: What in your opinion are the most important pillars of fish farming success in Libya?

Question 16: What in your opinion are the most important factors which impede the development of fish farming in Libya?

Question 17: What is the role of the governmental policies in developing the fish farming in Libya?

Question 18: Since you have supervised a M A thesis in the field of agricultural loans, do you think that the agricultural bank played a positive role in the activity of fish farming?

Question 19: Does the sector contribute to increasing fish production in Libya?

Question 20: Has the fish farming sector achieved any social returns such as rural development, providing working opportunities, etc.

Question 21: What are the investment attraction factors for the fish farming sector which could be exploited to develop this sector?

Question 22: Is the government serious in its attempt to develop the fish farming sector? Was that for economic considerations or are there other considerations?

Question 23: From the questionnaires, we found out that the number of fish farms is declining whether they are operating in the public or the private sector. What is the reason in your opinion?

Question 24: Some think that fish farming cannot succeed without considering the natural resources in Libya. One needs to consider the local Libyan market (whether in the production areas or in the big cities) and how it can accommodate the farmed fish commodity (quantity and quality). What is your viewpoint on this issue?

Question 25: Do you think that within the data available one can promote foreign market for the Libyan farmed fish?

Question 26: What is the role of the research centers, the universities, and the specialist academics in developing the fish farming in Libya?

#### **With an academic in the agricultural economics:**

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Question 25: Do you think that within the data available one can promote foreign market for the Libyan farmed fish?

Question 26: What is the role of the research centers, the universities, and the specialist academics in developing the fish farming in Libya?

**With an expert in the fish farming activity who is in charge of the National Body of Aquaculture (breeding water creatures)**

Question 1: When did the fish farming activity start in Libya?

Question 2: What are the most important types of such activity (aqua-culturing in fresh water or in salty water)?

Question 3: How many fish farms are there in Libya? Can you clarify what the number was at the beginning of the activity and what the total number is now including those that belong to the private and/or public sector?

Question 4: What are the most important aqua-cultured types? On what bases are they selected to be farmed in Libya?

Question 5: What are the most important fish farming systems applied in Libya?

Question 6: Are the fingerlings and fry produced locally or are they imported from abroad?

Question 7: Do farmers experience difficulties in their attempt to get the fingerlings and fry whether in the local or foreign markets?

Question 8: Are there technicalities with respect to aqua-culturing (fish farming) which are imported from outside?

Question 9: Do the concerned authorities seek the help of other experts to develop the fish farming sector?

Question 10: Does the government play a role in developing the sector? What are the facets of this role with respect to the general policies, funding, training, research, etc.?

Question 11: Most scholars consider the fish farming activity as sheer failure in Libya since it has not achieved its objectives from the time it established in the 1970s? Do you agree with this view?

Question 12: In your opinion, why do not the fish farms operate efficiently? Why many of them have failed or stopped operating?

Question 13: What is the role of the private sector in the fish farming activity?

Question 14: Do you think there is a difference in the production efficiency between fish farms that belong to the public sector and those that belong to the private sector?

Question 15: Are there fish farms that belong to foreign investors?

Question 16: There are fish farms that are established and equipped with the necessary equipment that cost the government huge amounts of money but they were not operated. We have noticed that most of them were almost destroyed because of the long period of neglect. What do you think the reasons are?

Question 17: What in your opinion are the most important motives for the interest expressed by the government in fish farming and the constant support despite the deterioration in the production efficiency?

Question 18: Do you think that the fish farming industry has contributed to increasing fish production in Libya?

Question 19: Do you expect that the production will increase in the fish farms in light of the current weakness in the sector efficiency?

Question 20: Could we consider fish farming in Libya merely an experiment or an activity under experimentation and not a full-fledged economic activity?

Question 21: What in your opinion are the most important benefits that the fish farming activity could realize if it is fully developed whether from the economic, social or environmental viewpoint?

Question 22: When I consider the Libyan coast which extends over nearly two thousand kilometres, I enquire about the economic value of constructing a fish farm on the shore or in the inlands. The sea is full of fish: it only requires a fisherman, a net and a ship to exploit it. What do you think of that?

Question 23: What can be done to save the fish farming sector from destruction? Who is responsible for that?

Question 24: Most believe that investing in the fish industry is profitable but the investors do not seem to be interested in this sector. This is evident from the number of farms that belong to the private sector in Libya. Why in your opinion the investors are discouraged from investing in this sector?

Question 25: Being an expert in fish farming, do you provide consultation and guidance to the farmers? Are your instructions received positively?

Question 26: How can one benefit from the experiences of developed countries in this sector to develop the fish farms in Libya?

Question 27: What is your role as a researcher and expert in this area in developing the fish farming in Libya?

Question 28: What are the future prospects of fish industry in Libya?

**With an expert in the field of fish breeding and a supervisor for the general survey of the fish farms in Libya**

Question 1: When did the fish farming activity start in Libya?

Question 2: What are the most important types of such activity (aqua-culturing in fresh water or in salty water)?

Question 3: how many fish farms are there in Libya? Could you clarify how many they were at the beginning of the activity and what is the current total number of the projects whether those belonging to the private or the public sector?

Question 4: What are the most important aqua-cultured types? On what bases are they selected to be farmed in Libya?

Question 5: What is the most important fish farming systems applied in Libya?

Question 6: Are the fingerlings and fry produced locally or are they imported from abroad?

Question 7: Do farmers experience difficulties in their attempt to get the fingerlings and fry whether in the local or foreign markets?

Question 8: Are there technicalities with respect to aqua-culturing (fish farming) which are imported from outside?

Question 9: Do the concerned authorities rely on foreign expertise for developing fish farming?

Question 10: Does the government have a role in developing the sector? What are the aspects of this role from the general policies perspective: funding, training research, etc.?

Question 11: Most consider that the fish farms are unsuccessful economic activity in Libya since it has not realized its objectives since its commencement in the 1970s. Do you agree with this perspective?

Question 12: In your opinion why the fish farms do not operate efficiently? What are the reasons behind the failure of most of the farms and their eventual halt?

Question 13: What is the role of the private sector in the field of fish farming?

Question 14: Do you think there is a difference in the production efficiency between the fish farms that belong to the public sector and those that belong to the private sector?

Question 15: Are there farms that belong to foreign investors?

Question 16: There are fish farms that were established and equipped with the facilities that cost the government much but they were not put in action: most of them were completely disused because of the long period of neglect. In your opinion, what is the reason for that?

Question 17: What in your opinion are the most important motives for the care exercised by the government for fish farming and the continued support despite the constant deterioration in its production efficiency?

Question 18: Do you think that the fish farming activity has contributed to increasing the fish production in Libya?

Question 19: do you expect that fish farming production will increase considering the current circumstances represented by the marked weakness in the sector efficiency?

Question 20: Is it possible to consider fish farming in Libya an experiment or an activity under experimentation rather than a full-fledged economic activity?

Question 21: what in your opinion the most important benefits realized by the fish farming activity when it is developed to the desirable level whether from the social, economic or environmental perspective?

Question 22: When I cast a look at the Libyan shore which extends over two thousand kilometres, I ask myself about the economic returns for setting up a fish farm on the shore or deep on the land and the sea is full of fish that requires only a fish man, a boat and a net to fish them. What do you think of that?

Question 23: What can we do to save the fish farming sector from destruction? Who is responsible for that?

Question 24: Many think that investing in fish farming is profitable but it seems that investors are not so keen on it. This evident from the number of farms belonging to the private sector in Libya in general. Why in your opinion people are hesitant to invest in this sector?

Question 25: Since you are an expert in fish farming, do you provide technical guidelines and directions to the farmers? Do you think that are positively received?

Question 26: How can we benefit from the experience of the developed countries in this field to develop fish farming in Libya?

Question 27: What is your role as an expert and a scholar in this field of developing fish farming in Libya?

Question 28: What are the future prospects of fish industry in Libya?

## 8.2. Appendix 2: Structured interviews:

### 8.2.1. Structured interviews: the original Arabic copy:

استبيان حول المزارع السمكية في ليبيا

المزارع البحرية

جامعة شافير ..... لد ه ..... الم

بريد ..... طائر ..... ا

اسم الباحث:

مسعودة عبد الرحيم بوعروشة

2009-2008

ملاحظة: بيانات هذه الاستمارة سرية وتستخدم للأغراض العلمية فقط.

أولاً: معلومات عامة عن المزرعة و إدارتها :

- اسم المزرعة: .....

- اسم المنطقة: .....

- اسم القائم على المزرعة: .....

- العمر: ..... سنة.

- الجنس: ذكر . أنثى.

- المستوى التعليمي: تدريب عادي. ابتدائي

اعدادي ثانوي.

جامعي. آخر.

- المهنة: .....

- سنوات الخبرة: أقل من عشر سنوات. 10-15 سنة.
- 16-20 سنة. 21-25 سنة.
- 26 - 30 سنة. أكثر من 30 سنة.
- تاريخ انشاء المزرعة: .....
- تاريخ العمل الفعلي في المزرعة: .....
- حجم المزرعة: ..... هكتار.
- نوع الحيازة:
- ملكية خاصة (فرد). ملكية خاصة (شركة).
- ايجار من قطاع خاص. ايجار من قطاع عام.
- محاصصة مع قطاع خاص. محاصصة مع قطاع عام.
- ملكية قطاع عام.
- اجمالي عدد العاملين بالمزرعة: ..... عامل.
- نوع العمالة بالمزرعة: عمالة عادية..... عامل , الاجر.....دينار/شهر.
- فني تربية و تفريخ..... عامل, الاجر.....دينار/شهر.
- فني ميكانيكي..... عامل, الاجر.....دينار/شهر.
- فني كهربائي..... عامل, الاجر.....دينار/شهر.
- مشرف..... عامل, الاجر.....دينار/شهر.
- سكرتير..... عامل, الاجر.....دينار/شهر.
- مدير..... عامل, الاجر.....دينار/شهر.
- الطاقة المستخدمة: طاقة كهربائية.
- طاقة غازية.
- طاقة نفطية.
- مصادر المياه: مياه البحر. مياه البحيرات.
- مياه السدود. المياه الجوفية.
- مياه الصرف الزراعي. مياه معالجة.
- مياه الامطار. مياه النهر الصناعي.
- اخرى.
- نوع المزرعة: تربية. تفريخ. تربية و تفريخ معا.
- نمط الزراعة: مكثفة. شبه مكثفه. واسعة.
- نظام الاستزراع: مغلق.
- احواض خشبية. احواض خرسانية.
- احواض بلاستيكية. احواض الياف زجاجية.

شبه مغلق

مفتوح  
اقفاص طافية  
اقفاص عائمة  
اقفاص مسطحة.

ثانيا معلومات متعلقة بالتمويل:

- مصادر التمويل:

- 1- تمويل ذاتي. 2- اقتراض. 3- منح او دعم.
- في حالة الاجابة (3) هل الدعم من: الدولة. جهات خارجية.
- في حالة الاجابة (2) هل الاقتراض من: المصرف الزراعي. سماسرة
- الجمعية التعاونية. مؤسسات مصرفية غير زراعية
- مؤسسات خاصة.

- عدد القروض التي تحصلت عليها.....قرض.

قيمة القرض	تاريخ الحصول عليه	تاريخ الاستحقاق	% للفائدة

- هل القرض: ☐ قصير الاجل . ☐ متوسط الاجل. ☐ طويل الاجل.

- في حالة الحصول علي القرض, ما هي اوجه الاستخدام له:

- الانشاءات. شراء المعدات والالات.
- شراء وسائل النقل . شراء مبردات.
- شراء الزريعة و الاصبعيات. شراء الاعلاف.
- التوسيعات والتجديدات. اخرى.

- هل تعتبر معدلات الفائدة على القروض مرتفعة؟ ☐ نعم ☐ لا ☐

- اذا كانت الاجابة بنعم, فيماذا تفسر ارتفاعها؟

.....

.....

.....

- هل تواجهك اي مشاكل في الحصول علي القرض من الجهات المانحة؟ ☐ نعم ☐ لا ☐

- اذا كانت الاجابة بنعم, فما هي اهم تلك المشاكل؟

.....

.....

- هل لمدى توفر مصادر التمويل المناسبة دور في تحفيز او عرقلة الاتجاه نحو الاستثمار في نشاط الزراعة السمكية؟

☐

لا

☐

نعم

- اذا كانت الاجابة بنعم, فما هو برأيك هذا الدور؟

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.....  
.....

- اذا كانت الاجابة بلا, فبماذا تعلق ذلك؟

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.....

### ثالثا المعلومات المتعلقة بالتكاليف:

- راس المال المستثمر:

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مصادر التكاليف:

#### 1- التكاليف الثابتة:

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.....  
.....

- التكاليف المتغيرة ( التشغيلية):

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.....  
.....

أ- تكلفة الاسماك:

ب- تكلفة التغذية:

ج- باقي بنود التكاليف:

- هل تعتقد أن تكاليف الزراعة السمكية مرتفعة؟ نعم ☐ لا ☐

- اذا كانت الاجابة بنعم, فما هي برأيك مصادر هذا الارتفاع؟

المباني والانشاءات. المعدات والاجهزة .

الاصبغيات والبرقات والبيوض. الاعلاف.

اخرى

- هل لتكاليف الزراعة السمكية دور في عرقلة او تحفيز الاتجاه نحو الاستثمار في هذا النشاط؟

☐

لا

☐

نعم

- اذا كانت الاجابة بنعم, فهل توضح لنا هذا الدور .

.....  
.....

- اذا كانت الاجابة بلا, فلماذا برأيك؟

رابعاً المعلومات المتعلقة بالانتاج:

نوع الانتاج الاساسي	الكمية (كجم/هكتار)	متوسط سعر البيع (دينار/كجم)	قيمة الانتاج
1-			
2-			
3-			
نوع المنتجات الاضافية			
1-			
2-			
3-			

- هل هناك اي مشاكل تواجهك في العملية الانتاجية؟ ☐ نعم ☐ لا ☐

- اذا كانت الاجابة بنعم، فهل المشكلة متعلقة ب:  
الاعلاف.

الزريعة والبيوض.

الاصبعيات.

الوقود.

الامراض و النفوق.

اخرى.

- هل لديك حلول مقترحة لاي من هذه المشاكل. ☐ نعم ☐ لا ☐

- في حالة الاجابة بنعم، هل يمكن ان تزودنا بهذه الحلول:

- هل الانتاج في المزرعة مستقر؟ ☐ نعم ☐ لا ☐

- اذا كانت الاجابة بلا، فما الذي يسبب تذبذب الانتاج في رأيك؟

خامساً المعلومات المتعلقة بالتسويق:

نوع الانتاج الجاهز للتسويق	الكمية (كجم)	متوسط السعر (دينار/كجم)	اجمالي الايرادات
1-			
2-			
3-			

- متطلبات التسويق المتوفرة في المزرعة:  
مخازن مبردة.

وسائل نقل مجهزة.

عمال متخصصين في عملية البيع والتسويق.

وسائل اتصالات.

معدات تعبئة وتغليف.

تلمج : تصنيع داخل المزرعة.

توريد من خارج المزرعة.

اخرى

- منافذ التوزيع:

منفذ التوزيع	الكمية (كجم)	السعر (دينار/كجم)	الجهة المسوق لها
داخل المنطقة			
خارج المنطقة			
خارج الجماهيرية			
اخرى			

- كيفية التسويق:

جملة ☐ قطاعي ☐ اخرى ☐

- هل الاسواق المحلية تستقبل دائما انتاج المزرعة؟ نعم ☐ لا ☐

- اذا كانت الاجابة بلا , فما هي الاسباب؟ وما هو البديل الذي تلجأ اليه عندئذ؟

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☐ .....  
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.....

- هل الاسواق المحلية مجهزة تجهيزا جيدا لاستقبال انتاج المزارعين؟ نعم ☐ لا ☐

- اذا كانت الاجابة بلا فما هي العيوب التي تشكو منها تلك الاسواق؟

.....  
.....

- هل هناك مشاكل تواجهك في عملية التسويق؟
- نعم ☐ لا ☐
- إذا كانت الاجابة بنعم, فهل تلك المشاكل متعلقة ب:
- التخزين. النقل. التبريد.
- الاسواق. العملاء والوسطاء. اخرى.

- هل لديك اى حلول مقترحة لتلك المشاكل؟

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.....

ثامنا: معلومات متعلقة بالارباح و العوائد:

- هل الارباح مجزية مقارنة بمدى الجهد المبذول في هذا النشاط؟
- نعم ☐ لا ☐
- إذا كانت الاجابة بنعم فما هو المصدر الحقيقي للارباح بالنسبة لك؟

انخفاض التكلفة.

ارتفاع الايرادات.

ارتفاع اسعار البيع.

زيادة الانتاج.

زيادة الطلب على الاسماك.

اسباب اخرى.

- هل هناك مواسم لا تحقق فيها اى ارباح؟
- نعم ☐ لا ☐

- إذا كانت الاجابة بنعم , فهل لك ان توضح لنا اسباب ذلك:

نفوق المحصول.

انخفاض اسعار البيع.

ركود الاسواق و انخفاض الطلب.

عوامل طبيعية.

اخرى.

- هل للارباح علاقة بعرقلة او تحفيز اتجاهات الاستثمار في نشاط الزراعة السمكية .
- نعم ☐ لا ☐

- إذا كانت الاجابة بلا, فيماذا تعلق استمرارك في العمل بهذا النشاط؟

.....

.....

.....

- ما هي في رأيك اهم العوامل الجاذبة للاستثمار في نشاط الزراعة السمكية في الجماهيرية الليبية؟

عوامل اقتصادية مثل .....

عوامل اجتماعية مثل .....

عوامل طبيعية مثل .....

عوامل سياسية مثل .....

عوامل اخرى مثل .....

- ما هي في رأيك اهم العوامل التي تقلل من اتجاهات الاستثمار في نشاط الزراعة السمكية في الجماهيرية الليبية؟

عوامل اقتصادية مثل .....

عوامل اجتماعية مثل .....

عوامل طبيعية مثل .....

عوامل سياسية مثل .....

عوامل اخرى مثل .....

☐

لا

☐

نعم

- هل ترغب في توسيع نشاط المزرعة في المستقبل؟

- اذا كانت الاجابة بنعم:

1- ما هو نوع التوسيعات والتجديدات التي ترغب القيام بها؟

ما هي قيمة الاموال التي تخطط لاستثمارها في هذا النشاط مستقبلا؟

- اذا كانت الاجابة بلا، هل يمكن ان توضح لنا الاسباب.

اسباب تمويلية.

اسباب اجتماعية.

اسباب قانونية.

اسباب بيئية.

اسباب اخرى.



لا



- هل تدعمك الدولة بأى شكل من الأشكال في هذا النشاط؟ نعم

- إذا كانت الإجابة بنعم، هل يمكن أن توضح لنا أوجه هذا الدعم.

باعتبارك احد المستثمرين المحليين في نشاط الزراعة السمكية، نطلب منك ترتيب المعطيات التي تشجع و تطور اتجاهات الاستثمار في نشاط الزراعة السمكية في الجماهيرية الليبية حسب الاهمية بحيث يكون رقم (1) هو العنصر الاكثر اهمية ( بالنسبة لك)، و الرقم (20) هو العنصر الاقل اهمية . ( بالنسبة لك)

تقديم الاعفاءات الضريبية و الجمركية عند توريد المواد والمعدات والالات اللازمة للعمل في هذا النشاط.

تقديم القروض والتسهيلات المصرفية المالية وفتح الاعتمادات باجراءات و شروط سهلة و ميسرة للمستثمرين.

خفض اسعار الفائدة على القروض، خاصة في السنوات الاولى من بدء المشروع.

اصدار التشريعات و القوانين التي تنظم و تحكم العمل في نشاط الزراعة السمكية في ليبيا .

وجود قواعد ثابتة ومقننة تنظم استغلال و حيازة بعض الاجزاء من المسطحات المائية المملوكة ملكية عامة في

مشروعات الزراعة السمكية .

توفير قاعدة معلومات متكاملة حول نشاط الاستزراع السمكي في ليبيا تسهل للمستثمرين الحاليين و الجدد

توجيه استثماراتهم بالشكل المناسب.

فتح الباب امام القطاع الخاص لتوفير مستلزمات الانتاج من زريعة و اعلاف و ادوية ومعدات و أجهزة و غير

ذلك.

فتح المجال امام برامج التدريب و التاهيل للعاملين في هذا النشاط من خلال الدورات التدريبية في المراكز

البحثية المتخصصة داخل الجماهيرية وخارجها.

تزويد الاسواق المحلية بالامكانيات و التقنيات والتسهيلات اللازمة لانتاج عمل هذه الاسواق.

تسهيل اجراءات و معاملات تصدير الانتاج الي الاسواق الخارجية.

تطوير الطرق و وسائل المواصلات سواء البرية او البحرية و ايضا الجوية بين مناطق الانتاج ومناطق

التسويق والاستهلاك.

تطوير وسائل الاتصالات السلكية واللاسلكية.

قرب المؤسسات الخدمية من مناطق الانتاج (المزارع السمكية).

زيادة و تطوير عمل المصارف الزراعية.

الاهتمام بتحسين و تطوير عمل الجمعيات التعاونية لتقديم خدمات افضل للمزارعين

تطوير عمليات الانتاج التكاملية، من خلال بناء مصانع لتعليب الاسماك او انتاج الاعلاف من مخلفات الاسماك

وغير ذلك من العمليات المكتملة والمضافة للانتاج الرئيسي من المزارع السمكية .

الاهتمام بالمراكز البحثية المتخصصة في مجال الاستزراع السمكي.

توفير عدد و نوعية مناسبة من المرشدين الزراعيين في مجال الاستزراع السمكي لارشاد وتوجيه المزارعين.

تنفيذ سياسات ترويجية مختلفة بهدف تعديل العادات الغذائية للمستهلك الليبي لصالح الاسماك.

استجلاب خبرات ادارية وفنية ذات كفاءة عالية في مجال الزراعة السمكية من الدول ذات الباع الطويل في

هذا المجال، وتشغيلها في مشروعات الاستزراع السمكي في الجماهيرية الليبية.

- هل لديك اى اضافة ترى انها ذات فائدة في موضوع الاستثمار في الزراعة السمكية؟

.....  
.....  
.....  
.....

في النهاية لا يسعني الا ان اتقدم اليك بجزيل الشكر ووافر العرفان لهذا الوقت الثمين الذي منحتني لي في سبيل البحث العلمي وانا لا أقوم بهذه الدراسة الا رغبة مني في خدمة وطننا الحبيب، وتقديم شيء يفيد نشاط الزراعة السمكية في الجماهيرية الليبية علي اعتباره نشاط واعد يخدم بالنهاية اقتصادنا الوطني.

اذا كانت لديك الرغبة في الاستمرار بالتواصل معنا وتبادل الاراء و المعلومات يمكنك ان تزودنا بمعلومات الاتصال بك:

فاكس:.....

هاتف:.....

هاتف نقال:.....

الباحثة / مسعودة ابو عروشة.

جامعة شافيلد هالم / بريطانيا.

## 8.2.2. The translated structured interviews:

### (1) General information about the farm and the farmer:

- Farm's name:

.....

- Farmer's name:

.....

- Name of area:

.....

- Age..... Gender Male Female

- Education level: General training Secondary education

Undergraduate Postgraduate

- Career.....

-Experience period: under 10 years. 10 -15 years 16 – 20 years.

21 – 25 years. 26 – 30 years Up 30 years.

-Date of farm establishing:

.....

**-Date of actual work in the farm:**

.....

**-Farm size:**

.....Hectare.

**-Kind of farm possession:** Privet sector (Individual).

Privet sector (company)

Rent from privet sector.

Rent from governing sector.

Partnership with privet sector

Governing sector

Partnership with governing sector

**-Total employees in the farm:**

.....

**- Type of employee:**

General employee: .....Salary/ month:

.....L.D

Rearing & hatchery technician: ..... Salary/ month: .....

L.D

Mechanical: ..... Salary/ month: .....

.....L.D.

Electrician: ..... Salary/ month: .....

.....L.D.

Director: ..... Salary/ month:

..... L.D

Secretary: ..... Salary/ month: .....

.....L.D.

Manager: ..... Salary/ month: .....

.....L.D.

**-Used Power:**

Electric

Gas

Naphtha

Other

**-Water sources:**

Brine water.

Lakes water

Rainwater.

Irrigation water

Dam water

Ground water.

Artificial River water

other

**-Type of farm:**

Rearing

Hatchery

Both

**-Farming System:**

Extensive

Intensive

Semi-Extensive

**-Farming Method:**

Closed System:

Semi-Closed system:

Open System:

1-Wood tanks

1-Raceways

1-Floats cages

2-Plastic tanks

2-Earth ponds

2-Raft cages

3-Fiberglass tanks

3-Trays cages

4-Concrete tanks

**(2) Information regarding of finance:**

**- Finance sources:** self funding                      Loans                      Gift & Subsidy

**- If you choose the third choice, are the gifts from:**

Government institutes                      External institutes                      Relatives

**- If you choose the second choice, are the loans from:**

Agricultural banks                      Cooperation societies                      Brokers

General Banks (Not agricultural)

**- How many loans did you earn since you start your work in aquaculture?**

Amount of loan (LD)	Date of loan gaining	Date of pay ability	% of interest

**-Is the loan:** short term                      long term                      medium term

**-If you earn loans, how would you spend it?**

Buildings                      Installations & machines                      transport means

Fodders                      larva & fingerling                      Renewal & expansion processes                      other sites

**- do you think the interest rates are:** high                      low

**- Do you face any problems or difficulties when apply for loans?** Yes                      No

**- If you choose (yes), could you clarify these problems?**

.....  
.....  
.....  
.....  
.....  
.....

**- does the availability of finance resources have any roles to encourage the development trend of marine aquaculture in Libya?** Yes                      No

**- If you choose (yes), could you explain this role?**

.....  
.....  
.....  
.....

.....  
.....  
.....  
.....  
.....  
.....  
.....

- If you choose (No), could you justify why not?

.....  
.....  
.....  
.....  
.....  
.....

**(3) Information related to the capital and costs:**

**-Invested capital:**

.....  
.....  
.....

**- Cost resources:**

**1- Fixed costs /year**

.....  
.....  
.....  
.....

**2- Variable costs:**

.....  
.....  
.....

**- Do you think costs of aquaculture are:**                      High                      low

**- If you choose (High); in your opinion, what are the main reasons behind this increase in cost?**

Buildings and other establishes                      Larva and fingerling  
Materials and equipments                      Fodder                      other sites.

**- if you choose other sites, could you give details?**

.....  
.....  
.....  
.....  
.....

**-Does aquaculture's cost have any roles to encourage or discourage trends of development in this activity?**                      Yes                      No

**- If you choose (yes), could you explain this role?**

.....  
.....  
.....  
.....

.....- if you choose (No), could you justify why not?

.....  
.....  
.....

.....  
.....  
**(4) Information about the farm production:**

Type of fish production	Quantity per km <sup>2</sup> (kg)	Sell price in mean (L.D/Kg)	Total value
1-			
2-			
3-			

- Do you face any problems in the production processes?      Yes                      No

- If you choose (yes) do these problems related to the following:

Fodder providing                      Power resources                      Fingerling and larva providing  
Disease and death                      Type & quality of water                      Natural and climate conditions  
Culturing systems                      culturing methods                      other

- If you chose other, could you give details?

.....  
.....  
.....

- Do you have any suggestions to solve these problems?                      Yes                      No

- If you choose yes, could you provide us these solutions?

.....  
.....  
.....  
.....

- Does the production in the farm steady?                      Yes                      No

- If you choose (No), in you opinion, could you give reasons of this fluctuation?

.....  
.....  
.....

**(5) Marketing information:**

Type of fish production ready to sell	Quantity (kg)	Sell price in mean (L.D/Kg)	Total value of returns
1-			
2-			
3-			

- Marketing requirements available in the farm:

Chilled stores                      Equipped transports                      Communication                      Ice

Experts' employees in marketing process                      Packing and encasement materials

- are agree with the general trend of fish prices?      Yes                      No

- If you choose no, could you tell us why not?

.....  
.....  
.....  
.....  
.....

- Who are the responsible to determine the fish prices?

Government    (policy)                      market    (supply and demand)

- Do you think the consumers agree with the current prices?    Yes                      No

- Give more details for your answer

.....  
.....  
.....  
.....  
.....

- Location access:

Allocation access:	Quantity (kg)	Sell price in mean (L.D/Kg)	Market site
Inside the area			
Outside the area			
Outside Libya			

-Market approaches:                      Retail                      wholesale                      other

- Do the local markets always receive your fish production?      Yes                      No

- If you choose (No), could you clarify the reasons for that?

.....  
.....  
.....  
.....  
.....

- In that case, where do you sell you fish crops?

.....  
.....  
.....  
.....  
.....

- Do the local markets equipped in good way to receive farms production?

Yes                  No

**- If you choose (No), could you explain the main imperfections that local markets are suffering from?**

.....  
.....  
.....  
.....

**- Do you have any problems in marketing process?**                  Yes                  No

**- If you choose (Yes), do these problems related to the following:**

Storage                  Transportation                  Chilling treatments                  Markets  
Agents and intermediaries                  other

**- If you choose other, could you give us details?**

.....  
.....  
.....

**- Do you have any suggested solutions for these problems?**

.....  
.....  
.....  
.....

**(6) Information regarding to profits and returns:**

**- Do you realize profit?**                  Yes                  No

**- If you choose (No) could you tell us why?**

.....  
.....  
.....

**- If you choose yes, do you consider that the size of profits is worth to spent effort in this activity?**

Yes                  No

**- If you choose (Yes), could you define the real resource of your profits?**

Cost decrease (low price of inputs)                  High price of outputs.  
Increasing of fish demand                  Other reasons.

**- If you choose (No) could you tell us why?**

.....  
.....  
.....

**- Do the profit levels in general have any roles to encourage or discourage trends to investment in aquaculture activity?**                  Yes                  No

**- If you choose (No), could you justify why you still work in it?**

.....

.....  
.....  
.....  
.....

**- If your farm is under the public sector, why do you think the government invests in this activity?**

.....  
.....  
.....  
.....

**In your opinion:**

**- What are the main factors drive to encourage the development of marine fish farming in Libya in Libya?**

**Economical factors:**

.....  
.....  
.....  
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**Social factors:**

.....  
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.....  
.....

**Political factors:**

.....  
.....  
.....  
.....

**ecological factors:**

.....  
.....  
.....  
.....

**- What are the main factors drive to discourage the development of marine fish farming in Libya?**

**Economical factors:**

.....  
.....  
.....  
.....

**Social factors:**

.....  
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.....  
.....  
.....  
**Political factors:**

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.....  
.....  
.....  
**ecological factors:**

.....  
.....  
.....  
.....  
.....  
.....  
**- would you to expend your work in the fish farm in the future?**                      Yes                      No

**- If you choose (Yes):**

**1- What are the Kind of the expansion that you would like to do:**

.....  
.....  
.....  
**2- What is the value of capital that you plan to invest in this active in the future?**

.....  
.....  
.....  
**- If you choose (No), could you give reasons?**

Funding reasons                      Social reasons                      Lawful reasons

Environmental reasons                      other reasons

**As you consider as a local investor in aquaculture activity in Libya, I request you to arrange the following factors which encourage and developing trends to aquaculture in Libya, this arrangement must be depending on the importance level respecting of you, since number (1) is the very important factor, and number (20) is the unimportant factor:**

Offering discharge of taxes and customs on importing process for the necessary materials, equipments and installations	
Offering of loans, funds and banking facilities in simple process, as well as obtainable conditions for the investors.	
Decrease the rates of loan's interests, especially in the first years of working in fish farm.	
Issuing of laws and legislation which organize and encourage investments in aquaculture	
Establishing information base belongs to aquaculture in Libya, facilitates working of present and expected investors in aquaculture activity in appropriate way.	
Encourage the privet sector to work in aquaculture to provide the production requirements, such as fingerling, larva, foddors, Medicines, Machines and other equipments.	

Preparation treatments of academic, technical and managerial work force in aquaculture inside or outside Libya.	
developing of financial institutes and agricultural banks which dealing with aquaculture activity	
Unchangeable roles organize exploiting and holding of coasts and water areas for aquaculture activity.	
Developing local marketing through providing needed facilities and techniques to success these markets.	
Facilitating of exporting process of Libyan aquaculture production to the foreign markets.	
Developing of transports means between areas of production and areas of marketing and consumption.	
Developing of communications means.	
Neighborhood of facility and service institutes from production areas. (Fish farms).	
Improving and increase the role of Cooperation societies to offer good services to the fish farmers.	
Developing complement production operations through establishing of fish canning factories, and treatment fish wastes factories and any other fish process.	
Providing of agriculture directors who help fish farmers to work successfully.	
Applying publicity policies which might change Libyan people habits in favor of fish consumption.	
Bringing of fish aquaculture experts from advancing countries in this field, to work with Libyan experts to develop this sector in Libya.	

**- Do you have any farther information which you think it could be benefit for the research?**

.....  
.....  
.....  
.....  
.....

**At the end I would like to thank you for your time that you spend with me to fill this form.**

**- If you like to keep contact and dialogue with the researcher about the aquaculture activity, you can give us your contact details:**

Fax: .....

Telephone: .....

Mobile:.....

**Researcher: Masauda Abuarosha.**

**Sheffield Hallam University**

### 8.3. Appendix (3): Classification of documents:

name of report	date	issued by	number of pages	language	type of report	main contents
Government documents						
<u>Libya at the dawn of new era:</u> <a href="http://www.isc.hbs.edu/bdf/2006-0209%20Libya.pdf">http://www.isc.hbs.edu/bdf/2006-0209 Libya.pdf</a>	2006	National Council of Economic Development	79	English & Arabic	electronic	- Libya's competitive position in 2006 - long term vision of Libya 2019 - Action Agenda for Libya
<u>Evaluation of agricultural policies (1970-2000)</u>	2000	Ministry of Economic & Planning	134	Arabic	paper	Agricultural development strategies development plans Achievements of the development plan Agricultural policies review the productive situation of agricultural activities
<u>General frame of agriculture sector</u>	1994	General Council of Planning	57	Arabic	paper	Importance of agriculture sector to the economy Positives and negatives of the past practise analysis of the future of agricultural sectors suggestions of agricultural policies
<u>report of agricultural development (1970-2005)</u>	1970-2005	General Council of Planning	163	Arabic	paper	reviewing of the progress and development in agriculture: <b>Natural resources</b> (water, soil, forest and protected areas and pastures <b>Food production:</b> plant production, Animal production, fish production and food processing <b>Agricultural activities and environment concerns</b> assistance <b>agricultural facilities</b> suggestions of

							agricultural policies
<u>report of preparation of fish farming plan</u>	1984	Sea wealth institution	35	Arabic	paper	Reasons of interest on fish farming in Libya survey of potential sites for fish farms: description of each site farm projects including type of fish farming system, type of fish, size of the farm, related facilities and the expected production capacity,	Initial maps and suggestion plans of fish farming units and manufacturing and training programs
<u>development conducted in marine fishery and fish farming sector</u>	2009	Ministry of Agriculture	74	Arabic	paper	ports of natural fisheries accessories storage and marketing canning of fish	fish farming researches and training programs
<u>Annual report of follow up fish farms.</u>	2004 2005 2006 2007 2009	MBRC	68 45 47 52 49	Arabic	paper	Targets of the survey each fish farm notes and comments of experts recommendations	technical report about updates and renewals
<u>national strategy of Libya's non oil economy</u> <a href="http://www.isc.hbs.edu/pdf/2006-0127_Libya_NES_report.pdf">http://www.isc.hbs.edu/pdf/2006-0127_Libya_NES_report.pdf</a>	2006	The General Planning Council of Libya Michael E. Porter & Dr. Daniel Yergin, Chairman,	203	Arabic & English	electronic	Vision for Libya 2019 national competitiveness framework An assessment of Libya's competitiveness Overview Economic Performance Economic Composition The Libyan Business Environment: Macroeconomic, Political, Social and Legal Context The Libyan Business Environment: Microeconomic Foundations of Competitiveness An assessment of sectors: Overview Energy Cluster & Energy-Dependent Industries Tourism Cluster Agriculture Cluster	the

						Construction Cluster Transit Trade Cluster
non government reports						
<u>FAO Achievements in Libya</u> <a href="http://neareast.fao.org/FCKupload/File/achLv.pdf">http://neareast.fao.org/FCKupload/File/achLv.pdf</a>	2011	Food and Agriculture organization (FAO)	36	English	electronic	Analytical Summary on the Results-based Achievements Natural Resources Plant Production and Protection Livestock 5 Agricultural Support Systems 6 Nutrition, Food Quality and Safety Fisheries Research and Technology Transfer Locusts: EMPRES Programme Narrative on activities/achievements/impacts Few Examples of projects executed by FAO in different topics Natural Resources Plant Production and Protection Animal Health Fisheries Agricultural Support Systems Water Resources Management Success Stories
<u>National medium term investment programme</u> <a href="ftp://ftp.fao.org/docrep/fao/009/ag389e/ag389e00.pdf">ftp://ftp.fao.org/docrep/fao/009/ag389e/ag389e00.pdf</a>	2006	New Partnership for Africa's Development (NEPAD)/ Food and Agriculture organization (FAO)	37	Arabic & English	electronic	Libyan Economy Basic Features of the Agricultural and Rural Sector Performance of the Agricultural Sector Strategy and Programmes for Agricultural Development and Food Security Strategic Planning Framework Country Priorities Major Donors' Strategies Project Pipeline.

						<p><b>Major constraints and opportunities</b></p> <p><b>Investment programs outline:</b></p> <p>Investment Priorities</p> <p>Priority 1: Sustainable development and management of land and water resources (corresponding to CAADP pillar 1)</p> <p>Priority 2: Improvement of rural infrastructure and trade-related capacities for market access (corresponding to CAADP pillar 2)</p> <p>Priority 3: Promotion of agro-processing (corresponding to CAADP pillars 2 &amp; 4)</p> <p>Priority 4: Increasing food supply and reducing hunger (corresponding to CAADP pillar 3)</p> <p>Priority 5: Strengthening agricultural research and extension (corresponding to CAADP pillar 4)</p> <p>Selection Criteria for Bankable Projects</p> <p>Preliminary Identification of Projects for Development</p> <p>Identification of Projects for Preparation</p> <p><b>Financing gap</b></p> <p><b>Monitoring and evaluation</b></p> <p><b>Initial consideration:</b></p> <p>and aquaculture. objectives cost factors aquaculture and national capture fisheries</p> <p><b>consideration:</b></p> <p>concerns other physic-chemical parameters water quality and environment site selection</p> <p>production consideration: installations on shore lagoons salt marsh and wetland environments cage culture</p> <p><b>development options for Libyan coastal areas</b></p> <p><b>Recommendation</b></p>
<u>planning for aquaculture development in Libya</u> <a href="http://www.fao.org/docrep/field/009/ag170e/AG170E01.htm#ch1">http://www.fao.org/docrep/field/009/ag170e/AG170E01.htm#ch1</a>	1995	LIBFISH /No. 9/ J.E. Reynolds, D. Hadoud & F. Vallet	101	English	electronic	Libya's macroeconomic context the national economy development objectives sector's institutions role of fishery in sectors
<u>marine wealth sector (development planning overview</u>	1995	LIBFISH /No. 14 J.E. Reynolds,	160	English	electronic	

<p><b>(Libya)</b></p> <p><a href="http://www.fao.org/docrep/field/009/ag421e/AG421E00.htm">http://www.fao.org/docrep/field/009/ag421e/AG421E00.htm</a></p>		<p>With: A. Abukhader &amp; A. Ben Abdallah</p>	33	English	electronic	<p>programs and policies fisheries culture fisheries (marine aquaculture) management of capture fisheries marine aquaculture planning and management of coastal zones planning and management of post harvest activities Development options</p> <p>inland fisheries planning and management of coastal zones</p> <p>marine captures</p>
<p><b><u>national Agricultural Policies</u></b></p> <p><a href="http://medfrol.maic.h.gr/documentation/view/reports/wpl-napr/NAPR_LIBYA.pdf">http://medfrol.maic.h.gr/documentation/view/reports/wpl-napr/NAPR_LIBYA.pdf</a></p>	2005	<p>Ali Abidar Ahmed Laytimi MEDFROL PROJECT</p>				<p>Libyan national economy and world economy Libyan dinar exchange rate place of agriculture in the national economy agriculture and food policy general setting price and income support. agricultural trade policy measures measures affecting imports measures affecting exports. measures affecting input use fiscal policy infrastructure policies. research and development extension and education quality and sanitary control structural policies land reform and program of structural adjustment agricultural infrastructure promotion and distribution rural development policies. agro-environmental measures measures affecting the consumer social measures assessing "rate of assistance" to agriculture.</p>

## 8.4. Appendix (4): Data Analysis Part (1):

### 1. Government policies toward the development of marine aquaculture:

Government policies toward the development of marine aquaculture:	
interviews	
Official A	<p>The orders of agricultural sectors based on the priority: the plant production and the water management come in the first place; animal husbandry second, and then fishery come last. But this does not mean that we are neglected the fishery ... More emphasis stressed on the plant production than fish production. ... Taking big steps since 2004 toward the sector to improve it... Change now in government policies ... expect more involvement of private sector... Real steps toward reforming the agricultural sector to be more efficient. .... Government considered sector as one of the high returns investment projects. ... Ministry now is planning to establish hundreds of marine fish farms. It is about 250 small and medium scale farms. ... Put more emphasis in the hatchery process,... The new vision the government policies recognized sector The role of government policies is critical but the tool of implying these policies are limited. .... Problem is always related to the implication of such policies... whether because of that these policies are overly optimistic, or these policies have not been support by the tools and mechanism to realize it is targets. ...</p>
Official B	<p>Policies of bank are deriving from the policies of the ministry of agriculture. ... General policy of bank is to provide the support to the farmers and related businesses and institutions, to serve the national aims of agricultural development. .... We are just applicators of the agricultural ministry's policies in regarding to the funding aspect. ... We are not responsible to the total cost of establishing new farm businesses... we provide a big hand of help to support farmer to establish new farm.</p>
Academic A	<p>Contradictory government's policies is hindered the development ... government allows to import wheat flour with a very low prices, cheaper than the cost of producing the wheat locally. .. Government policies decreased the desire of investors to invest their money in agriculture; Why the government invest huge money in reclamation desert to produce wheat and barley if it has, for many years, failed to make Libya self sufficient in grain products... Libya is still imports most of its need from grains.... Instead government should focus more on fishery and fish farming because Libya has more potential in these sectors rather than in others. .... Agricultural policy hinder sector to realize the targets of development, ... Government has done too little for such important sector... government should revise its policies regarding the marine fish farming by providing more tools to increase the sector's productivity, .... Farmers always say:" we just hear about support but we do not</p>

	<p>receive any thing". Government just speaks too much and acts too little. ....Giving more role to the private sector has taken a place in the government policies, but in the ground implication of the policies is not exist; there was many difficulties most of them were related to the measures and legislations. .... Government, as usual, says something and do something different. Government is drawn the policies and settled the plans and allocated the budget. ... And then...it does neither care if development has been conducted or not ..... Government policies were not successful basically because it has stated a target in which is sometimes impossible to obtain ... Development does not match with the amount of money spent on the sector</p>
Academic B	<p>The government did not apply the policy of replacement and development program to the failure projects whether on the establishment and infrastructure or in the hum resources. ... Some of these reforms are positively affect the growth of the sector such as giving the private sector more roles in the sector. Others are not such as suspending the support ... Government policies do not provide any kind of protection to the local producers, At current time agricultural policies are considered failed policies, because it is not able to meet the development requirement, and it could not conduct the balance between the sectors potentials and development targets. ... insufficient use of money allocated for development of sector is due to insufficient tools of policies implications ... Policies is usually not been revised... especially in the part of development target ..... Policies are very optimistic and not based on scientific opinions....</p>
Expert A	<p>Agricultural government policies are unstable, and confused ... It should reform its implications and policies toward the existed projects of marine fish farms.... Most of the problem's solution is in the hand of government; if there is a willingness to do so.... Marine fish farming receive the required attention from the government ... but there are misapplication of government policies and plans ... The sector always struggling despite the efforts and the money spends on it..</p>
Expert B	<p>Government policies consider the sector is very important in respect to food security and realizing food self sufficiency ... Government has taken actions in this regard, and it has allocated support to establish the basics of this industry... Government did not practically change its policies toward the sector. The changes only on formal documents, but the ground is still the same. The government policies still interest on marine fish farming is to find alternative income resources to reduce the dependency on oil, also the potential to develop marine aquaculture is very promising and encouraging, and also there is availability of fund to make government keep its interesting on the sector... There are no practical movements toward developing the sector; what is in the governmental reports is much different on the ground.... Government policies always mention to the importance of the sector, and allocate money to development programs; but when what is in the ground does not reflect this considerable announced attention</p>
Non government	

documents	<p>Massive investments were injected in agriculture in the two decades following the revolution in 1969 in an attempt to improve food security situation ... Various policies and programs were implemented in support of this investment. .... Libya has recently embarked on economic reforms and invigorating agricultural policies to conserve and efficiently utilize natural resources and enhance agricultural productivity .... National authorities are keen on fishery adequate exploitation and utilization to increase foreign exchange earnings and to diversify and enrich the local diet.</p> <p>Authorities are convinced, far more than ever, of the need for invigorating their agricultural policies and programs to conserve and efficiently utilize their natural resources and enhance agricultural productivity .... Since the early 1970s, food security and strengthening the agricultural sector were assigned top priority in Libya ... Food security in Libya is a national priority. Although the term is used to mean self-sufficiency in major food crops</p> <p>Growing interest in fish farming is evident through the various projects that have been undertaken since the mid-1970s Official macro-level policy maker's interest in aquaculture, for economic diversification and greater self-sufficiency in food production. In the case of aquaculture this translates into material support to development efforts in the field.... In Libya Fish farming is become a focus of increased interest over the last few decades ... aquaculture fits as a component of a wider fisheries development plan which combines general strategies with specific policies and policy instruments in order to achieve national objectives</p> <p>National leadership, as part of an overall emphasis on economic diversification, has given high priority to development of food self-sufficiency. This is reflected in the pattern of state investment allocations, about one-fifth of which have been channelled into the agriculture sector since 1970.... Presumably also, past and present development investments in aquaculture projects are justified in terms of their possible contributions towards longer-term goals of economic diversification, food production self-sufficiency, and general welfare benefits.</p> <p>The main objective for agricultural development To ensure self-sufficiency in basic food crops... Government policies were formed to serve the national targets... Government efforts in agriculture development have been characterized by sizable investments and subsidies</p>
FAO's achievement in Libya 2011	
National medium term investment program	
planning for aquaculture development in Libya	
marine wealth sector (development planning overview (Libya)	
national Agricultural Policies	
Government documents	
Libya at the dawn of new era:(2006)	Development of non oil sectors to diversifying the economy beyond the oil and gas sector. .... Agriculture sector is one of the key elements of new Libya's economic strategy

Evaluation of agricultural policies (1970-2000)	<p>Agriculture sector has received a significant attention within the national strategy of converting to productive society.... Developing agriculture was mainly aimed to realize self sufficiency and diversify the economic base. Libyan government recently has tended to reform it policy toward agriculture in order to achieve optimal allocation of resources.... the core of agriculture development if 1970s and 1980s was realize self sufficiency in food. In 1990s and 2000s the trend was to realize the maximum limit of food sufficiency ... government allowed more contribution to private role in developing agriculture but it suspended the policy of (support production requirements)..... Government needs to revise its policy of realizing self sufficiency of many agricultural products through accounting the competitive advantage of agricultural products .... cultivating wheat was to top priority of agricultural sector</p>
General frame of agriculture sector 1994	<p>The development of agriculture is to realize self sufficiency and diversify economy and realize social development in rural areas... Agriculture was priority and it received a significant attention from leader ship</p>
National Economy Strategy	<p>Government policy has aimed for self-sufficiency in food. As a result, the sector has received generous subsidies government policies for production and investment are misaligned, and in some cases market-distorting</p>
report of agricultural development (1970-2005)	<p>Agricultural strategy of 2000s is emphasising on revising previous agriculture policies... According to the ecological conditions Libya will not be agricultural state with high productivity and will not even be self sufficient in targeted agricultural products.... Government policies are aiming mainly to meet the targets of self sufficient and increase agricultural sector contribution to the economy...</p>
development conducted in marine fishery and fish farming sector/2008	<p>The state policy in the agricultural sector in general and in sector fish farming in particular tends towards easing restrictions on the private sector both in terms of supplies of production or final production. Such policies are on structural adjustments in agricultural policies, both in the field of price policy or marketing as well as in ownership programs; where were number of projects has been privatized including fish farms..... State policies designed to boost the productivity of fish farms and raise the proportion of its contribution to the production of fish, thus contributing to the achievement of the objectives of self-sufficiency and diversification of sources of national income</p>
Findings	<p>Government policies toward fish farming is similar to that of any other agricultural sectors,</p> <p>Government policies were formed to serve the national aims of promotion of food self-sufficiency, general welfare enhancement through economic diversification, creation of greater employment opportunities</p> <p>The government policies to develop the agriculture sector was supported by sizable investments and subsidies.</p> <p>Economic reforms and invigorating agricultural policies to conserve and efficiently utilize natural resources and enhance agricultural</p>

	productivity, however the government still interest in developing the sector and give it significant priority but with some changes regarding to operate the sector by giving more role to the private sector
--	---

## 2. Drivers of government policies:

### 2.1. Political ideologies:

	Political ideologies
interviews	
Official A	There are general ideologies higher than the specific policies of agricultural sector...it is like the essential reference should not go beyond ... The problem with some of these ideologies that they are sometimes inappropriate, or its costs are higher than the returns. ... We just follow the directions from people because the decisions are in the hand of people and are made through the People's Congresses. ... We failed to meet this target because in fact these are unattained targets ... Change in the mechanism of the development plans in the country after 1977 after the Proclamation of the People Power, has changed the mechanism for the exercise of power to be turned the task of planning just like that of the legislature, to the People Base that sets the essentials and priorities on projects and goals, after which the technical staff (planners) to converted these essentials and priorities to a practical plans, I have limited power... I can give my comments or suggestions to the general council of planning but I cannot force them to adopt it ... Ministry of agriculture is not alone to make decisions ... There are complicated issues in this regard which are impossible to explain.
Official B	We are here just to apply the structures we receive from higher powerful; we have limited power especially in the area of policies and planning
Academic A	Look at the Green Book and you can recognize why the government has reduce to role of private sector ... There is no economic consideration in the case of developing agriculture sector including the marine fish farming in such inefficient way ... Since 1977 planners and policy makers have adopted this statement as a base from which the agricultural policies and plans are formed. "No freedom for a country bring food from behind the sea" (Green Book) . It is ideological and political ambitions and has no relevance to the economy that leads the government to keep spending money on the sector in this way ... Projects of MMR is for a political purposes rather than economical, it is the best example of the sterile and short vision policy that may lead to catastrophic consequences for society as a whole. All of the promises regarding to improve agriculture through this projects did not happen ... the method of access to the targets of development were still blurry ... All what you hear about development projects are just political announcements ... There is no real willingness to conduct a development whether in marine fish farming or in any other

	agricultural activities.
Academic B	<p>Agricultural plans in the development are only a fake intended political purpose; or achieve personal benefit ... The intentions behind this privatization procedure were not properly based on an economic decision; it was a hasty and deliberate political decision ... One of the revolutionary targets was to be independent through being food self sufficient, this has a very strong influences on the way that the government spend on the sector of agriculture. The attention of the leadership was still the same, evidenced with the continual efforts on establishments of agricultural projects across the country; however the attention to the with the late of 1990s and in 2000s, although government has started to take economic reforms and move to more capitalism leadership still keep the same attention to agriculture, but also more attention has focused on services sector as the promising non oil sector. Most of systems similar to Libya's leadership ideologies are intersecting in agriculture sector; look at Cuba, Vietnam and Venezuela.... The dominance of some key people in the military over some agricultural projects ... The insufficient use of allocation for the sector is due to the intervention of military institutions in controlling some of the big scale agricultural projects ... Sometimes social and political goals overcome economic targets. Despite its insistence on the announcement of the reform programs in economic policy and development, but development did not happened ... means there is a kind of the contradiction between what is declared and what is reality</p>
Expert A	<p>Motives for the interest expressed by the government in fish farming and the constant support despite the deterioration in the production efficiency might because that there are a political influences in this point. Qaddafi mentioned to the importance of fish farms to provide fish for local communities in the south of Libya, he emphasized on developed the sector, Saif Qaddafi has emphasized on the sector as one of the main sectors targeted by the transformation measures</p>
Expert B	
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	<p>According to existing laws and regulations, based on Green Book, land cannot be rented, however, arrangements are sometimes made by farmers unable to work for their farms to be operated and managed by a public authority for a share of the revenue. The main challenge facing agricultural development is setting realistic goals for development within the sustainable use of resources....Ambitious goals like achieving self-sufficiency in all major food commodities will not be realistic given the harsh environment and the fragile natural resource base .... lack of consideration of</p>

	economic feasibility
planning for aquaculture development in Libya	
marine wealth sector (development planning overview (Libya)	
national Agricultural Policies	Since 1969, when Qaddafi's socialist Government came to power, the major economic policy objective of the regime has been to reduce the country's dependence on oil and foreign companies' .... Reduce the role of private sector... The policies implemented of nationalization of the confiscation of the agricultural land owned by Italian settlers, and the "libialization" of the state administrative network, had resulted in the State taking control of almost all economic domains of the country. Large money surplus from oil exports and Qaddafi's keen interest in economic diversification and social welfare has prompted large Government investments in agriculture and non-oil related industries.
Government documents	
Libya at the dawn of new era: (2006)	Government drives economic development through policy decisions and incentives ... Economic development should be collaborative process involving government at multiple level, universities and institutions... competitiveness frame work of development and Green Book share essentials principles to enable Libya to define its own unique economic mode
Evaluation of agricultural policies (1970-2000)	Emphasis on the direction of the leader Qaddafi to be independence and be self sufficient on food. government encouraged the collective and the individual ownership and private business without exploitation or slaving each others
General frame of agriculture sector	The green revolution, which was launched by the great revolution of September the over more than three decades, established giant infrastructure and a achieved great achievements in the field of plant and animal and fish production in order to reach self-sufficiency. Libyan people stand in honour and in recognition of the leader Muammar Gaddafi, who is leading a green revolution through his directives and follow-ups, which is the

1994	ongoing path of action to achieve growth and prosperity
National Economy Strategy NES 2006	the National Economy Strategy project is to assist in the creation of a unique mixed economy model that balances market mechanisms with the core values of the Libyan Jamahiriya—a model that Qaddafi has referred to as ‘popular capitalism’—and thus help Libya achieve its aspiration vision for 2019. The NES Project aims to move Libya from a distributive economy with under-developed institutions to a unique mixed economy model that balances market mechanisms with the values of The Third Universal Theory ... Qaddafi himself has frequently pointed out the discrepancy between reality and aspiration in Libya's efforts to realize the values of the Jamahiriya.
report of agricultural development (1970-2005)	The supporting and continuing guidance of leader Qaddafi to develop the agricultural sector and the achievement of agricultural renaissance was to ensure the provision of basic food needs of the people of Libya and therefore all the plans and policies has been and continues to stem from such guidance.... Within the interest of leader Qaddafi of the agriculture sector and farmers, it had to be the configuration of institutions that support farmers, Thus that was the began the idea of cooperative associations
development conducted in marine fishery and fish farming sector 2008	On the implementation of the immortal statement of the Revolution Leader of (no freedom of the people ate beyond its borders), the Libyan state has paid the agriculture sector large interest, fisheries and fish farming was targeted by this interest as well, mainly to contribute effectively to food security which is essential to the Libyan people ... the state has allocated plans to meet those direction
Findings	<p>The government tries to develop all agricultural scopes including marine fish farming are driven by the application of the basic arguments and ideologies of Qaddafi, stated in the Green Book; basically the statement of “No freedom for a country bring food from behind the sea”, regardless of the availability of resources and the competencies of the policies used to achieve them.</p> <p>Plans and policies are largely affected the directions and the decisions of Qaddafi. It is ideological and national ambitions and has no relevance to the economy that leads the government to keep spending money on the sector in this way (generously).</p> <p>Qaddafi's ideologies toward private sector gave the lead role to public sector.</p> <p>The development of agriculture and its different scopes are only a fake intended political purpose; Political goals overcome economic targets.</p>

## 2.2. Oil sector:

	oil sector
interviews	
Official A	Agricultural sector is largely depending on oil to fund the national agricultural projects and plans ... Continual fund of agricultural sector from oil revenues did not allow the sector to depend on its self... we have no other choice at least at the current time... We have to deal with this status and just do our best to develop the sector. The decline of the oil prices in the mid of 1980s forced the government to find a way to reduce the dependency on oil revenues...it has trended to find alternative policies that make the non oil sector including agriculture, self depend and fund its self instead of relying on oil. If there is no oil; I believe the sector will work better than it has now, because the availability of money allows the decision makers to do not spend much time about chasing behind the returns from the investments of this money.
Official B	
Academic A	Oil has a side effect on the economy, as Libya become Reinter state depend on the returns from oil exportation. Oil has not been exploited effectively to build required infrastructure of the development of non oil sectors. Oil allows government to spend on the agriculture generously without any attention to the economic efficiency. Marine fish farming could be a very important source of income. But the huge returns from oil encouraged the decision makers to ignore the evaluation and the monitoring of these activities.
Academic B	thinking in the recovery of money spent on the sector, on the basis that all losses offset by oil Negative consequences are still present, as the country have experienced some the symptoms of Dutch Diesis; which is revealed from the lack of practical attention to the development of the non oil sectors, and to improve their economic and social productivity; Significant revenues from oil in country such Libya distinguished by low levels of government performance, and spreads the administrative corruption, and has unstable administrative system; I believe the failure would be the end of any development process whatsoever spending on them. Oil creates a kind of laziness in the non-oil economic sectors,
Expert A	Government does not deal with the sector as vital and important sector to the Libyan society, and it is not consider it as an economic activity that could bring any economic benefits. It is something that the government interested to try, and not bothering with the result because of the

	availability of too much money comes from oil.
Expert B	high dependency on oil returns contributes in somehow in this situation ....Government in the times of austerity in 1980s and 1990s have done much better on the sector, were most of the fish farms has been established in that period, as there was the big plans to improve the non oil sectors.... Availability of income from oil returns, I think, has make the government less stressed to improve or increase the productivity of this sector, I mean this has reduced the governmental enthusiasm to develop the sector.
Non government documents	
FAO s achievement in Libya 2011	Libya economy depends on hydrocarbons, which on the average contribute to. More than 45% of GDP and earn the country more than 90% of its foreign exchange.
National medium term investment program	Libya's economy depends heavily on hydrocarbons. ... Oil revenue remains the sole source for balancing food supply and demand, pointing to the failure of all plans to increase food supply to achieve food security ... The performance of the import agricultural trade has been impacted by its dependence on the availability of oil revenues. Libya stopped the using this planning framework with fixed budgets and timeframes and instead adopted an annual budget planning process ... This was partly due to the highly fluctuating oil market.
planning for aquaculture development in Libya	Subsidies to develop fish farming are provided from the public purse .... with availability of high revenues from oil there is no.. seem to be any compelling reasons to encourage widespread establishment of aquaculture facilities
marine wealth sector (development planning overview (Libya)	The economy of Libya is dominated by the oil sector. Over the last decades oil has fundamentally changed the country from one based largely on agriculture to one in which agriculture is of comparatively minor significance ... Development budget of marine wealth and fishery allocations was from direct funding (treasury)
national Agricultural Policies	Because of Libya's economy heavy dependence on oil revenues , its GDP fluctuates closely with the world oil and hydrocarbon industry market prices and politics... Before oil discovery and exportation, agriculture contributed about 30% of Libya's GDP. From 1960s to nowadays, its share has diminished to about 5 % of the GDP ... Before oil discovery and exportation, agriculture employed about 70% of the labour force. Nowadays, it employs an average of 10%. The foreseen increasing revenues of oil will surely continue help provide some margin of security for the country to afford food to its population for the decades to come. It will also help continue maintain the large investments and the subsidies that the Government is implementing.

Government documents	
Libya at the dawn of new era: (2006)	High and increased dependence on oil revenues as GDP growth is driven exclusively by oil prices ... economy is dominant by oil sector ... oil resources revenues allow unproductive policies to persist ... oil resources revenues support distortive subsidies which work against efficiency in the economy
Evaluation of agricultural policies (1970-2000)	Because of the radical decline of oil world prices, the plans of 1970s and 1980s failed to achieve its targets ... Allocation for agriculture sector reached 20% of the total investments period (1970-2000) comes from the national budget
General frame of agriculture sector 1994	Libyan economy is heavily dependent on revenue from natural resources ... The oil revenues is the fund resource of agricultural sector ... Availability of significant revenues from oil allowed to continue spending on the sector despite stumbling and low productivity
National Economy Strategy	Oil sector constitutes the most developed portion of the energy cluster ... For most of the 1970s and the 1980s, the government invested heavily in the sector
report of agricultural development (1970-2005)	Oil and gas sector was the main source of fund of all agricultural government projects .... The use of oil to fund agriculture sector was insufficient ... Oil revenues is the key element of economy
development conducted in marine fishery and fish farming sector 2008	Allocation to the sector of marine resources and aquaculture from (1970-2008) is considered the lowest, it accounted at 0.4% of the total budget of the transition, this budget defined the total expenditures on productive sectors of the economy which is completely funded by the revenues of oil
Findings	<p>Libya's economy is highly depend on oil revenues, Oil revenues allow unproductive policies to continue and support the inefficient exploit of government subsidies</p> <p>Oil has critical role to fund the sector of agriculture (including marine fish farming)</p> <p>Libya is using a considerable amount of oil revenues to import about 75-80% of food needs.</p> <p>Symptoms of Dutch Disease; With availability of huge revenues from oil exports, there is no compelling reasons stress the government to develop the agriculture and marine fish farming sector. The availability of high revenues from oil leads to decrease the enthusiasm of government to improve the marine fish farms.</p>

### 2.3. planned economic system:

Planned economic system	
Interviews	
Official A	<p>Government authorities (public sector) had to take completely the lead in (1970s and 1980s)... This approach was considered at the time appropriate to the circumstances and facts of domestic and international, within the lack of economic base in that times... After 1985 The public sector started to be less effected, but the centralization still there but in different forms, I mean there were changes in the label of the government administrations, Privatized some farms such as Ain Al-Ghazala and we expected this farm to work better than before ... Privatizing was aiming mainly to secure such farms from destruction, and this just started this year so we expect the benefits would not come second day any way. But I believe private sector would do much better than us. Let us give them time to do so. Public sector has, through the time, confirmed its insufficiency... government is still responsible to built and prepare the infrastructures, but operating the sector should be in the hand of private sector. Bureaucracy is hindering any improvement moves ... Agriculture companies have too many problems because of centralization system of its management ... The centralization makes the administrators in the public sector work under a very tight constraints. The centralization of government allows the corruption and also makes the administrators work under a very tight constraints.... The bureaucracy is hindering any improvement moves. ... some problems happened because of the centralization system..... agriculture has too many problems because of centralization system of its management,</p>
Official B	<p>government did not give more power... we cannot do any farther contribution to developing marine fish farming or any other agricultural sectors ... the dominant role of state and the centralization all over the agricultural sector has affected the sector's efficiency ... Agriculture bank It is central administration followed the public administration of agriculture in Tripoli. Agriculture bank It is central administration followed the public administration of agriculture in Tripoli. Centralization and bureaucracy make planning of banking delivery at one point without taking into account the dynamics and economics changes of a particular region of the country, Centralization is affecting our ability and flexibility to take fast and effective decisions when it necessary ... Delay in the response from the central administration in Tripoli would cause a delay in response here as well... affecting Quality and the speed of services provided ... Centralization system of administration might cause such events. (Non agricultural usage of loans) ... The bank services are still limited to just providing loans.</p>
Academic A	<p>of Comprehensive Central Planning, Public sector still dominate the economy .... Government shrinking role of private sector, although it announced that it has allowed the private sector to contribute into the economy ...on other hand it impose too much constraints ...interrupt the private sector's movement. Private sector up to date still struggling ... agriculture sector faced bottlenecks and problems associated with</p>

	<p>the control of public sector, and with the centralization system. The centralization is another factor hinders the development process ... The public administrative are located in Tripoli, and did not give more power for sub units of administrative, and for branches to work effectively. These units are closer to the actual ground than these central administrative, so it is able to manage the sector and act faster to any problems facing the sector on the ground. The centralization is another factor hinders the development process. The public administrative are located in Tripoli, and did not give more power for sub units of administrative, and for branches to work effectively. These units are closer to the actual ground than these central administrative, so it is able to manage the sector and act faster to any problems facing the sector on the ground. Libya adopts centralization and a holistic planning approach which does not taking into the account the differences between the scopes of agricultural sectors.</p>
Academic B	<p>The domination of public sector which is suffering from high degree of insufficiency, corruption and bureaucracy. has hindered the development of the sector... Centralization and bureaucracy. has hindered the development of the sector</p>
Expert A	<p>Private sector is insignificant in Libya, too much constrain limited its work .... Libyan government adopted some measures of reformation and become more open to the private sector and involve more local and international investments. There is a signs of reformations of the economy to give more chance to the private sector ... It would be difficult to be in contact all the time, because there are no other branches of the institution in the other areas of Libya, and this due of centralization system of administrating the economy ... Government should provide more power, supported by budgets, to the administrations which in charge to operate and manage the sector directly</p>
Expert B	<p>Private sector did not contribute to development of marine fish farms. Because of the dominant role of public sector all over private business for many decades ... There are constraints that imposed on the activities of private sector to limited their projects in small scale size .... With the beginning of the 21<sup>st</sup> century private sector started to show a sign of improvement, despite the number of projects is considered very small but their practices are promises with the success of many of them. In the near future and with the continual reforms in Libya, I think private sector will show a significant growth in the field of marine fish farming.</p>
Non government documents	
FAO s achievement in Libya 2011	<p>Libya has recently embarked on reforms such as elimination of most of the input subsidies and liberalization of the exchange rate, which would impact the agricultural sector</p>
National medium term investment program	<p>In the 1970s and early 1990s, massive ... investments of more than 20% of the total national expenditure .... were devoted to the development of the agricultural sector alone.</p>

	<p>Private sector managed to keep some agricultural activities productivity relatively stable despite technical problems. The performance of the import agricultural trade has been impacted by dominance of inefficient public sector .... The public sector clearly failed to manage the marketing and processing of agricultural outputs and created massive problems...so private sector success to play this role. One of main constraints is dominance of the public sector in most economic sectors: finance, insurance, industry, trade, transport, etc., resulting in the very poor performances of the economy as a whole .... Government efforts to open up for the private sector have been slow and encounter major obstacles, especially at legislative and administrative levels.</p>
planning for aquaculture development in Libya	<p>There is no interest or initiatives in fish farming projects emanating from the private sector .... The only private investment initiative of small-scale pond operation being organised by a landowner in area near Sabratah, This project remains very much in the formulation stage</p>
marine wealth sector (development planning overview (Libya)	<p>Whereas the national economy was characterized by heavy state involvement through the 1980s, including ownership and control of major industrial and agriculture projects, import and export companies, the service sector, and supply of basic commodities, there has since that time been a change in orientation allowing increasing scope for private enterprise .... Recently... implementing the policy for privatization of state company assets... keeping with recent national policy reorientation towards privatization and selective divestment of property and productive assets of state-controlled companies,</p>
national Agricultural Policies	<p>Public sector has always been the main source of investment in Libya ... Since the socialist government took over, private sector investments decreased ... During the era of UN sanctions, private investments have increased to reach about 25% by 1997. In the agricultural sector, various State projects, vineyard and cattle farms were also privatized. The creation of companies related to agricultural production was also encouraged. As part of its agricultural liberalization process Libyan government allowed market mechanisms to determine agricultural prices ... but there is slow process of economic reforms</p>
Government documents	
Libya at the dawn of new era: (2006)	<p>Government dominate production and distribution and there is lack of a meaningful private sector .... Libyan banking sector is highly concentrated where 85% of banking assets are accounted by six commercial banks in which 5 of them is owned by central bank of Libya .... the large extent of the informal economy indicates substantial barriers to entry the formal economy</p>
Evaluation of agricultural policies (1970-2000	<p>Government allowed farmers to run their farms as small scale type of business...however most of vital agricultural projects are owned and ran by public sector... these projects show low productivity and low performance...</p>

General frame of agriculture sector 1994	Government policy of encouraging private investments in marine and fish farming sector did not activated yet... it is still limited to small scale farms facing a several constraints imposed by the administration of public sector...
National Economy Strategy	the state dominated banking system in Libya has failed to offer its clients products and services comparable to developed economies .... Libyan government controls, directly or indirectly, the majority of assets. Government is a key investor in production and marketing, while the private sector has a very small presence ... In more recent years, the government has allowed the private sector to engage more actively in both agricultural production and marketing ... Government interventions have led to poor utilization of water and land resources, and have discouraged the private sector from large-scale investment in commercial agriculture.
report of agricultural development (1970-2005)	In 1970s government established agricultural cooperatives and linked to the agriculture sector in terms of supervision, control and direction.... from of socialist thought, with financial support for the purpose of involving them in achieving the overall development of the agriculture sector ... can not the agricultural societies of the performance of its functions and tripped ... the current policy of the State designed to activate the role. Private sector has no effective role yet in agriculture business although 90% of agricultural projects is in the private sector but due to its small size and due to other reasons its contribution to agriculture GDP remain weak.
development conducted in marine fishery and fish farming sector 2008	For many decades the government established a number of project owned by public sector .... Current policies are tend to give more role to private sector... After the recognized failure of public sector to manage and run the projects of fish farms; the government decided to ownership them to the private sector which showed more efficiency than the public sector.
findings	<p>Public sector has always been the main source of investment in Libya, there is heavy state involvement. Private investment still limited to small-scale projects operation.</p> <p>There are negative effects of the dominant role of public sector over the private sector. The domination of public sector, which is suffering from high degree of insufficiency, centralization, corruption and bureaucracy, has hindered the development of the sector.</p> <p>There is a clear symptoms accompanying the planned economy and affect the operation and the development of agriculture sector and its different scopes; such as centralization and bureaucracy. The public sector clearly failed to manage the processing and marketing of agricultural outputs.</p> <p>Despite the current reforms, of giving more roles to the private sector in the agriculture sector including marine fish farming; but the</p>

	<p>government interventions still did not give the required encouragement to private sector.</p> <p>There still constrains limited its role in the development of agriculture including marine aquaculture. Government efforts to open up for the private sector have been slow and encounter major obstacles, especially at legislative and administrative levels.</p>
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## 8.5. Appendix (5) Data Analysis (Part 2):

### A. Elements Obstruct Development process (Marine fish farming sector):

#### 1.1. Corruption:

	Corruption
interviews	
Official A	Especially within the exits of people who not aware of God, and they allow themselves to steal the public money. Number of farmers who have taken loans for the purpose of establishing fish farms, and they then used it for different purpose. I am not denying the fact that say there is levels of corruption in the government administrative, and thus I believes there would be a corruption in any units or institutions belonged to the public sector.
Official B	Most of people work in marine fish farming in the private sector is rich or related in somehow to government. Non agricultural exploitation of loans could highly happen, especially within the exits of corruption amongst the administrative levels of the public sector. Corruption is everywhere, but banking system is less corrupted. But amongst the public sectors administrations corruption become common phenomena in the developing world including Libya; I can't administrations I have recognized many forms of corruption... in the government at different and I have dealt with many corrupted managers and directors.
Academic A	The corruption in exploiting the money allocations decreases the encouragement of farmers, as they do not feel that they are receiving enough support from the government; Corrupted people exploit these lands in the non agricultural purposes .... Corruption is behind the delay in the development targeted in the planning programs. Problems due the subsequent phenomena of corruption such as bribery in the public sector, Only people who have a suspicious relationships of people in the government or who pay too much of money (which we called bribe) to access to the investment opportunities... if this money has been given to another country that have a high level of management resources and lower level of corruption I this they would have a very improved agriculture practice. Corruption is also exit... The main reasons of losing money is corruption... Part of allocations is stolen through the different techniques of corruption ... Corruption is also exit if one would talk about the problems of the development in a country
Academic B	There is dominance of some key people in the military and from Qaddafi's family over some agricultural projects, Agricultural plans in the

	development is ....to achieve personal benefit ... Privatization trend may be true; but the intentions behind this procedure were not properly based on an economic decision; it was a hasty and deliberate political decision for the purpose to take a personal advantage of some people, Corruption strongly exists ... Money spent on fake projects ... The insufficient use of allocation for the sector due to corruption
Expert A	Many Farms have been issued and did not operated or even exist on the ground .... I expect that, is just a speculation, people apply for loans to establish farms and then they use the money for something else ... There is a considerable level of corruption in the government administration.
Expert B	There is something missing; ... marine fish farming should be developed ten years ago according to the announced allocations to the sector. But to be honest nobody knows where this money has gone! Lack of monitoring with the spread of bureaucracy in the public sector allows the increase of corruption, which, is the only explanation of the gap between the government allocation for development plans, and the actual development implications ... There are lacks of national awareness of governors who allow such destruction to happen,
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	
planning for aquaculture development in Libya	
marine wealth sector (development planning overview (Libya)	
national Agricultural Policies	
Government documents	

Libya at the dawn of new era: (2006)	Control of corruption relative to MNEA countries (-46%) .... bank employees take bribes ... exist of corruption and favouritism by government... low income and lack of accountability have lead to increase of corruption
Evaluation of agricultural policies (1970-2000)	There is a lack of compatibility between the fund allocations for development programs and the money that actually spent which less than the allocations.
General frame of agriculture sector 1994	
National Economy Strategy	
report of agricultural development (1970-2005)	Another serious problem is low and highly regulated wages in the public sector, which depress productivity and encourage corruption
development conducted in marine fishery and fish farming sector 2008	
findings	although some documents do not mentioned to the corruption however this does not mean it is not exist on the other hand those who mentioned to it clarify that corruption is one of the factors hinder the development of agriculture sector in general and marine fish farms in specific
<b>1.2. Mismanagement:</b>	
	<b>Mismanagement:</b>
interviews	
Official A	Agriculture sector faces many difficulties including managerial problems due to the instable administrations,

Official B	We facing some other problems related to the miss management of the bank, due to the miss understanding of distribution of responsibilities and due to centralization
Academic A	<p>The agricultural sector suffers from low productivity due to the low level of farm management .... Poor management of human resources ... Mismanagement of agricultural sector caused this delay ... If make a comparison between the expenditures and the returns; we would find that there is inefficient use of the money allocations spent on the sector.... Most of the marine fish farms have failed because of the lack of the management of the sector in general not fish farms in specific... losing money are the miss management.. Allocations is missing or losing due to the miss management of the sector. Government takes a big part of failure of managing the marine fish farming sector. inadequacy of the framework for management of natural resources in a sustainable manner, Government support of aquaculture is existed, but it is not organized. it is indiscriminately Most establishments of aquaculture industry; are mostly damaged due to the government negligent ... managing sector without any sufficiency ... Delay in the development is also due to the continue conducting of failed projects.</p> <p>Money has been missing ... because of the poor management. Allocation for the development of the sector has insufficiently managed. Government did not keep working on this program, and did not revise the projects during the time (are they still work, are they stopped, what they need to develop them....etc</p>
Academic B	<p>There is a delay in everything .... less responsible behaviours from people who managing the sector Government do not provide us with necessary tools to mange do this work. In the light of management failure; this project began to deteriorate from year to year to be completely destructed years ago.... If they do not care about the sector's existed establishment, properties, and expansive equipments, way they bother to spending more money on it. There is problems facing the sector and this is normal (in my view), but the up normal thing is ignoring these problems and let them build up until they become disaster and cause the failure at the end. I hope the people in charge recognize this sector in more wise eyes.</p>
Expert A	<p>This is because of poor management of the sector. We always feels of the presence of inefficiency in the management of agriculture sector in general and marine aquaculture sector in particular, Many of marine fish farms that been well equipped but within the lack of sufficient management these farms has left to breakdown, these projects cost the national budget millions of dollars, and due to the lack of good management these money has gone for nothing. Government efforts to develop the sector was suffering from lack of wise management to realize efficient exploit of resources, also the support was randomly with inefficient management. This is including the mismanagement of the sector's projects, the mismanagement of development programs and the mismanagement of budgets and allocations.</p> <p>Other reason is indeed the mismanagement of these projects, whether in purpose or not in purpose</p>

Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	Government intervention through support and subsidies gave the wrong signals to farmers and consumers and resulted in misuse of agricultural resources... Bad performance due to inefficient management
planning for aquaculture development in Libya	There are administrative or operational deficiencies that need to be remedied .... There are administrative or operational deficiencies that need to be remedied ... poor management and implementation of projects .... Precaution not strongly applied in practice, some neglect in staying current with situation
marine wealth sector (development planning overview (Libya)	Serious disproportion has emerged between sector value outputs -- the real benefits being produced, and development and operational commitments -- the costs of this production... there is need for improved management and maintenance of aquaculture installations already in operation ... lack of appropriate legal and administrative framework which facilitates the development of responsible aquaculture .... lack of commitment on the part of some counterpart officers,
national Agricultural Policies	Because of the many small and fragmented farms, productivity remained low ... Lack of strong management framework revised in accordance with a clearly delineated overall sector strategy and development plan.
Government documents	
Libya at the dawn of new era: (2006)	Insufficient government bureaucracy... poor management
Evaluation of agricultural policies (1970-2000)	The agricultural projects lacked of good management
General frame of agriculture sector 1994	There is lack of allocations to maintain the agriculture projects ... There is lack of complementation of projects ... Neglect of maintenance and development projects of fish farming

National Economy Strategy	Administrative infrastructure in Libya is weak when compared internationally .... The most important weakness of the Libyan administrative system is the extent of bureaucratic red tape.
report of agricultural development (1970-2005)	There is a lack of sufficient exploiting of fishery resources whether from the sea or from fish farming... There lack of sufficient management of fishery sector through fills the gap in fish production from fishery by fish production from fish farming
development conducted in marine fishery and fish farming sector 2008	Progress in aquaculture was slow due to the absence of practical experience and technical management in this area, to the extent that some government projects were not implemented at all.
Findings:	<p>There is a clear mismanagement of the sector of agriculture and marine fish farming</p> <p>However there are another related problems has emerged through analysis the data:</p> <p>Neglect of maintenance of the exist projects ...</p> <p>continue conducting of failed projects without any sufficiency</p> <p>less responsible behaviours from people who managing the sector</p> <p>lack of complementation of projects ... and development projects of fish farming</p>
<b>1.3. Lack of monitoring system:</b>	
	<b>Lack of monitoring system</b>
interviews	
Official A	<p>In Libyan culture and society it would be difficult to conduct a monitoring in the efficient way.</p> <p>Difficulties facing us in monitoring process and in following the allocations of development plans increase the corruption and decrease the efficiency of these investments. For example the applications of fish farms are more than the real fish farms in the ground, which mean people are exploit the loans or funds in something different, and within the lack of strong monitoring authorities, it would be difficult to chase these</p>

	people ... as well as the lack of efficient monitoring system of exploiting the allocations for marine fish farming.
Official B	There is following-up of loans spending ... Supervising the use of them through the specialized committees. In very rare cases loans used in non agricultural purposes. Monitoring in Banking system is very good. We use programming and accounting system which make it difficult to be corrupted. In the public sector there is no effective monitoring system, and that is why it would be difficult to eliminate corruption
Academic A	There is a significant lake of monitoring not just the operations of agriculture sector, but also monitoring the applications of government plans, and following and pursuit the money allocations. There is a lack of measuring of how this money has been spent ... Most of the marine fish farms have failed because of lack of monitoring of the money invested in the sector .... Government does not follow up or monitor the budget spending, and instead it gives them more chance to do that again and again ... The lack of monitoring is draining the money.
Academic B	projects have no monitoring system which indeed encourage the corruption ... The insufficient use of allocation for the sector is due to lack of monitoring system,
Expert A	Government did not set a monitoring program that can revise these projects and measure its productivity ... There is lack of following plans...there is no monitoring mechanism of the plans and the projects adopted.
Expert B	There is lack of monitoring; whether of the marine fish farming projects ....lack of monitoring of the budget allocated to develop the sector.... Lack of monitoring is one of the main problems facing not just the marine fish farming sector, it is facing the whole economy. There is no real evaluation of the previous plans or projects that been conducted in the field of marine aquaculture ... Due to the careless from government to monitor the sector's productivity, so the sector is suffering from low growth rates and low efficiency.
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	Monitoring and follow-up have been among the weakest functions in implementation of previous Agricultural development plans from the early 1970s up to the present ... Planning, implementation, and follow-up responsibilities are not well defined

planning for aquaculture development in Libya	General Aquaculture Development Authority (GADA) has been established with a remit to oversee and promote fish farming interests in the country, but its role still insufficient ... lack of post-implementation assessment and monitoring. For exited projects
marine wealth sector (development planning overview (Libya)	continued lack of an adequate statistical monitoring and reporting system ... Inadequate monitoring, control, surveillance & enforcement existing regulations ... National participation, involvement irregular, follow-up not consistent.
national Agricultural Policies	
Government documents	
Libya at the dawn of new era: (2006)	Monitoring system is not active
Evaluation of agricultural policies (1970-2000)	Lack of efficient technical institutions to check the results and to monitor the work conducted .... There is a lack of consideration of economic feasibility of projects ... There is lack of monitoring system of projects
General frame of agriculture sector 1994	There is clear deficit in monitoring system ... there is a gap between allocation and the actual expenditures on agricultural projects due to the weakness of monitoring institutions
National Economy Strategy	There is no institutional structure which could monitor whether agricultural production and practices comply with international standards.
report of agricultural development (1970-2005)	Administration of monitoring for agricultural projects is insufficient
development conducted in marine fishery and fish farming sector 2008	The authority of monitoring and control is insufficient and needs to be restructured.
Findings	Analysis of data mentioned to the lack of monitoring system not just to the funds or allocation but to the projects and plans as well there is a

	weakness in the authority of monitoring and control, might be because of spread of corruption and the personal and tribe connection between people
<b>1.4. Insufficient information system and lack of data base:</b>	
	<b>Insufficient information system</b>
interviews	
Official A	There is a lack of communication with the people in this field, and with the stakeholders, including expert from Marine Biology Research centre... We still have problems in establishing an information base for all agricultural activities. We do not have yet effective information system that would help us for better management of the marine aquaculture sector...
Official B	there are serious problem regarding to the insufficient information system
Academic A	the formal reports and statistics said that the non Libyan workers in agriculture sector are accounted at 8-10% of total agricultural workforce, but however I believe it is higher than that, especially in the last fifteen years
Academic B	As an academic we always have problems with the access to the information, because there is no information system in the sector, no recording to any process, no real measurements ... The data and information about the sector since 1970s are missing or at least not been used to establish information base about the sectors progress, no information system even in the universities ... lack of studies of projects feasibilities,
Expert A	There are no Information resources...that could be used by farmers ... With the circumstances of lack of facilities available to us, it would be difficult to be in contact all the time to provide them with information
Expert B	There is a lack of information system... Without information, how could decision makers build the plans, and direct the sector. Information is one of the most important tools of planners and decision makers.
Non government documents	
FAO s achievement in Libya 2011	Constrained by the paucity of information required for policy analyses ... Information is particularly lacking on the economics of agricultural production

National medium term investment program	there is lack of realistic information bases
planning for aquaculture development in Libya	No effective fisheries statistics & information system ... Annual reports published but data reliability problems.
marine wealth sector (development planning overview (Libya)	a weak data collection system opens to question the reliability of available statistics ... Inadequate information base ... Reporting system for aquaculture activities very weak
national Agricultural Policies	Data on Libyan agriculture are sparse and vary widely
Government documents	
Libya at the dawn of new era: (2006)	there is lack of information system
Evaluation of agricultural policies (1970-2000	lack of sufficient searches and studies base about the optimal exploitation of the available resources ... there is large deterioration in agricultural statistics and documentation
General frame of agriculture sector 1994	Marine and fish farming sector suffering from lack of information and researches .... Weak of communication with agricultural research centres
National Economy Strategy	There is no reliable data... Limited and unsophisticated use of information technology
report of agricultural development (1970-2005)	The is ignorance of conduction surveys and studies to establish credible data base ... Despite the efforts of government to establish statistical and information system, but up-to-date the information system lack of credibility and far from reality...this has led to lack of clarity of the features of agricultural activities ... There is a lack of communication between decision makers and planners between agricultural research centre
development conducted in marine fishery and fish	There is no information base about the sector of fish farming ... Surveys and studies conducted in the field are not enough.... And to large extend, it is not credible

<p>farming sector 2008</p>	
Findings	<p>it was clear from analysis the data there was lack of information system</p> <p>there was also lack of data base</p> <p>lack of researches that provide scientific information</p> <p>there is also problem with credibility and validity of information</p>
<p><b>1.5. Lack of clear vision in planning system:</b></p>	
	<p><b>Lack of clear vision in planning system</b></p>
interviews	
Official A	<p>There is a need for revisiting development programs ... considering the balancing between the potentials, costs and targets ... Core of the problem is in the planning system itself...Plans are bigger than the potentials, and the policies are based on very optimistic visions ... Lack of integrated planning system .. There is no clear plan about this activity,</p>
Official B	<p>Providing long-term loans with easier conditions was under a comprehensive plan of economic transformation.... planning system is unstable struggling with lack of clarity</p>
Academic A	<p>There is lack of effective planning processes ... There is kind of confusion and lack of clarity in the vision for both the planners of the sector and for who draw the policies and determine the mechanics of implementation ... The way that the government takes to develop the sector is confusion. There is lack of clear vision in planning ... Plans are very promising when you look at them, but they are not based on an economic manner I guess, and they are not matching the resources available they are higher than the resources, There is a lack of communication between the decision makers or planners and the direct stakeholders including farmers, agricultural projects applicers and directors ... If government's plans are applied in the right way; marine fish farms would indeed contribute in increase the fish production... The development is insignificant comparing to the expenditures...they say that they allocated hundreds of millions of Libyan Dinar for developing agriculture...I can't see really these millions! Where are the projects that cost these millions they talk about? There is no development has happened in the rural community's... The rural areas are still neglected. This is mainly because of the lack of integrating between development plans for the different aspects of the socio-economy.</p>

Academic B	lacking in agricultural development plans to determine the exact priorities is due to lack of performance of existing bodies ... Poor agricultural planning; There is weakness in planning methods, which hinder the development process, such as; poor coordination between the various activities; whether within the agricultural sector, or even within the administrative levels between the other ministries ... There is considerable weakness of comprehensive planning between the agricultural sector and other sectors ... There are lack of clear vision of development ... Many other projects, not just in marine fish farming, have been planned with lack of the primary basis of any economic process
Expert A	The government does not build a good plan to develop the sector based on the experts and educated people's views and perspectives.
Expert B	There is a lack of the implementation of several development plans and the speed of the implementation of many of fish farming projects ... The government state plans and put policies but it is facing difficulties in the application due the lack of efficient planning system that based on scientific bases.
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	Fishery and fish farming sector suffering from lack of scientific inputs in planning and execution .... Planning institutions in practice they lack the resources and are unable to set clear objectives, policies and tools to ensure efficient planning.
planning for aquaculture development in Libya	Current state of sector planning in Libya is deficient ... the integration of strategy-policy-instrument components of planning remains weak ... There is a pressing need to establish coherence and complementarily. in planning system of aquaculture
marine wealth sector (development planning overview (Libya)	Although significant progress has been made to set the stage for enhancing the role of fisheries and aquaculture in the national economy, the sector still holds considerable untapped potential .... implementation of fish farming (aquaculture) projects seem to have been organised without reference to any comprehensive plan.
national Agricultural Policies	Agriculture investment hindered by the ill thought planning
Government documents	
Libya at the dawn of new	

era:(2006)	
Evaluation of agricultural policies (1970-2000)	There is a lack of vertical integrated plans to improve the production
General frame of agriculture sector 1994	the visions of plans and policies lack of scientific bases which lead to overlapping and uncertainty
National Economy Strategy	There is no overarching strategic plan for agricultural development in Libya at present.
report of agricultural development (1970-2005)	There are overlapping in plans of agriculture sector due to the lack of clear vision of planning system
development conducted in marine fishery and fish farming sector 2008	planning system is based on unclear visions and unclear information system
Findings	<p>from analysis the data related to this section the following findings emerged:</p> <p>Unclear planning system and lack of efficient planning system that based on scientific bases.</p> <p>overlapping in the visions of agricultural planning system</p> <p>weak integration of strategy-policy-instrument components of planning</p> <p>weakness in planning methods</p> <p>rural development has not been effectively considered in the planning of agriculture sector</p>
<b>1.6. Lack of agriculture financing and weak banking system:</b>	
	<b>Lack of agriculture financing and weak banking system</b>
interviews	

Official A	<p>Agriculture banks play supposed role .... Loans might be not enough ....lead farmers to borrow from other banks under high levels of interests ... Financial support should be through the agriculture banks, Government provided the farmers and the investor with other sources of financial support, including the development bank, the rural bank, and the institution of fund for shift to production ... we spend too much money on the sector but the sector did not realize any returns, in marine fish farming was the worst agricultural implications</p>
Official B	<p>Agricultural bank has two main fund resources....internal are the paid up capital, the allocation from the contingency budget, and the repayments of loans (collection of instalments of debt). External fund resources are limited to the local loans from local resources, and allocations from the agricultural development budget, and also from the current deposits including the current accounts of customers. Agricultural bank conditions are considered the easiest comparing to the other banking institutions. ... Loans are available with good conditions to the farmers ... Value of interest in agricultural bank is lower than the other banks . It is not the only financial institution provides loans to agricultural sector; there are others such as rural bank and development bank ... Government has created the institution of (fund to shift to production) for the purpose of providing fund to people want to involve in the sector... Our role in regarding to the national development plan of developing the different agriculture fields including marine fish farming should be bigger than how it is now ... There is need to increase the bank allocations, wide the bank power and vary the bank services ... I did not receive any applications related to fish farming ... Other branches, especially that ones in the west of Libya, they have provided loans for marine fish farms, but not this branch.</p>
Academic A	<p>Agricultural gain less interest from capital owners ... Lack of government fund support makes the activity unattractive sort of business ... Farmers do not receive the required fund support, their production cost is relatively high ... Banking system does not play positive role in developing marine fish farming, It needs to follow up an expansionary fiscal policies, and encourage both the local and the foreign investment in marine fish farming, by facilitated the loans providing. ....at my knowledge the marine fish farming has not received considerable attention as much as other sector.</p>
Academic B	<p>Agricultural banks did not take this task, as these bank was supposed to support farmers through providing loans with easy conditions, but this does not happened, where banks are not positive in this regard, so many farmers has left this business because of the lack of financial support ... agricultural banks have a very limited role in improving the sector ... constraints and the difficulties of the procedures and the opening credits</p>
Expert A	<p>Marine fish farming does not receive enough fund support from government like the other agriculture resources</p>
Expert B	<p>according to my field surveys many farmers has left the work because of the lack of financing resources...banks seem that they did not provide much help to farmers especially small farmers</p>
Non government documents	
FAO s achievement in Libya 2011	

National medium term investment program	The capital resources for the bank fall short of farmers needs. The lack of financial institutions specialized in financing fishery and fish farming schemes and the generally poor investment environment hindered Libya's ability to attract foreign investments to the sector.
planning for aquaculture development in Libya	There are insufficient financing resources to sustain fish farms... high costs of fish farming are not negligible... Fingerlings therefore constitute an important operational cost of aqua farms... Feed likewise represents an important cost ... viability of aquaculture establishments as commercial enterprises depend on financial performance, i.e. their ability to generate enough revenue to pay for their investment and running costs and to yield some profits through market sales. In this connection it is relevant to note that production from fish farming installations in Libya remains negligible, strict financial performance
marine wealth sector (development planning overview Libya)	Allocation for aquaculture development (1985-1995) was about 11% of the total budget for the development of marine and fishery sector, which considered the lowest amongst other marine fishery activities.
national Agricultural Policies	
Government documents	
Libya at the dawn of new era:(2006)	2/3 of Libyans faced difficulties to access to loan financing from banks due to : large collateral demanded, banks offer loans only to people they know, bank employees take bribes ... equity markets in banking system do not exist ...debt markets is small and immature ... Libyan banking sector is highly concentrated .... Libyan banks follow a tight lending policy despite substantial available liquidity
Evaluation of agricultural policies (1970-2000	government is continuing applying the policy of agricultural credit policy to provide financing support to farmers
General frame of agriculture sector 1994	High operational cost of agricultural projects with low returns .... Marine sector including fish farming received the lowest funding support, small allocation comparing to the other agriculture sectors ... Weak contribution of financing institutions in funding marine and fish farming projects
National Economy Strategy	The overall quality of financial markets is poor .... the state dominated banking system in Libya has failed to offer its clients products and services comparable to developed economies ... Processes are heavily paper-based with little use of IT, causing long delays ... Agriculture Bank received a capital injection of USD 400MM in 2005 to finance housing and agricultural projects ... despite the availability of these funds, banks are often unwilling to disburse loans to the private Sector ... Financial services are insufficiently developed, and the Agricultural Bank may be crowding out the private sector. Investment is held back, largely because the existing land tenure system does not allow for the use of land as

	collateral.
report of agricultural development (1970-2005)	Marine fishery and fish farming received the lowest allocation of agricultural budget despite it has stronger potential of development than the other agricultural sectors .... Low capital adequacy, owned by farmers, to finance production processes and funding requirements for maintenance, leading to poor management of agricultural production ... lack of financial resources have led to the Agricultural Bank could not meet the increased demands of agricultural credits
development conducted in marine fishery and fish farming sector/2008	Fishery and Fish farming received the lowest finance support from government they received only 0.4% of total transformation budget ... the number of loans provided to fish farms where the lowest comparing to other fishery activities (1970s-2008)... 13 loans for fish farming activities out of 1455 loans for other fishery activities .... 4 loans from (institution of Fund Shift to production .... 7 loans from Bank of development 2 loans from agricultural bank.
Findings	there is a lack of insufficient agricultural financing and lending system, Libyan government provide a considerable subsidies to the different agricultural scopes.. However fish farming received the lowest amount. in regarding to provide finance support through agricultural bank s also marine fish farming receive the lowest amount agricultural banking system, like other state banks suffering from corruption in the forms of bribes and nepotism
<b>1.7. Lack of skills and lack of training programs:</b>	
	<b>Lack of skills and lack of training programs</b>
interviews	
Official A	within a lack of skilled management; these changes would lead to increase the levels of misleading of the sector ... There are a lack of training programs of workforce in marine aquaculture ... The sector would do much better with the availability of skilled fish farmers ..The number of experts in this field is very limited .... key points that hinder the development such as the high dependency on foreign worker
Official B	There is lack of training programs for the employees...there is a lack of skilled management
Academic A	Low Labour productivity due to the low education level of the majority of workers in the agricultural sector. There are very limited skilled workers in marine fish farming... Low growth rate is due to lack of skilled administration to manage the sector ... Increase the dependency on

	the foreign workforce ... Lack of skilled agricultural workforce
Academic B	Obvious differences between the productivity of labour work in agriculture and in other sectors ... There are a weakness of worker's professions in agriculture, and their low skills ... lack of skilled management to lead the sector efficiently .... The insufficient use of allocation for the sector is also due to the lack of skilled management ... Lack of skilled management of resources,
Expert A	The government did not give much attention to set an efficient and specialized management ... Lack of experience amongst the farmers in practicing such activity .... Efficiency of farms is not related to the ownership of the farms, it related to the ability to manage the sector, and how to operate it.
Expert B	Progress was very slow due to the absence of practical experience and technical management in this area .... There is a lack of skilled workers in the field of marine fish farming, lack of experience... lack of knowledge about how to run a fish farm effectively .... Lack of training programs has largely contributed to hinder the development of marine fish farming. Due to the lack of technical knowledge and experiences in this field the farmers might make mistakes in farm design ... Lack of skilled people on the administrative levels, within the lack of training programs the skills of those workers will not improve .... The main reasons behind such event is the lack of technical knowledge to run and direct fish farm
Non government documents	
FAO's achievement in Libya 2011	The design of sound agricultural policies and their implementation and monitoring are seriously constrained by the limited technical capacities .... Insufficient number of well-trained inspectors .... adequate pool of national expertise to support future sustained development is still lacking,
National medium term investment program	Limited efforts in capacity building of human resources .... Low contribution of agricultural research centres .... lack of training programs of Libyan fishermen
planning for aquaculture development in Libya	There is need of training of both industry technical personnel and field extension staff .... Many aquaculture training activities depend on this rehabilitation work, and cannot be successfully executed in its absence
marine wealth sector (development planning overview (Libya)	Shortage of skilled and motivated professional staff .... Lack of technical training is necessary to facilitate operations .... Use of technical consultation mechanism is weak
national Agricultural Policies	Lack of well qualified Libyan human resources .... Lack of well prepared and informed technicians and farmers further hinder the performance of the sector.

Government documents	
Libya at the dawn of new era:(2006)	Low labour productivity .... Insufficient employee training .... Weak work readiness skills of human resources .... high dependency of foreign workers
Evaluation of agricultural policies (1970-2000)	Lack of national experts to implement the plans and strategies .... there is a lack of skilled workers
General frame of agriculture sector 1994	Clear deterioration of the size of Libyan workforce in the sector ..... There is lack of funding to training program of workers
National Economy Strategy	There is significant skill gap across almost all sectors of the Libyan economy. Libyan farmers are not properly trained, especially in the areas of correct selection of crop varieties ... Efficient management of scarce resources, and investment in technology and irrigation equipment ... The pool of skilled agricultural labour in Libya is extremely shallow.
report of agricultural development (1970-2005)	In the scope of marine and fish farming; despite the notable improvement in production methods, but the unskilled workers remains the critical factor determining the sector's productivity .... There is lack of training programs of national work force .... Workers in the private sector are unskilled
development conducted in marine fishery and fish farming sector 2008	Progress in aquaculture was slow due to the absence of practical experience and technical management in this area, to the extent that some government projects were not implemented at all .... In 2008 the rate of non Libyan workers in the sector of marine fishery and fish farming was 75% of total workers comparing to 67% in 1970 .... All training institutions of fishery and fish farming are concentrated in the west of Libya
Findings	<p>through the analysis of data findings show that there are :</p> <p>lack of skilled technical labours,</p> <p>lack of skilled management,</p> <p>Lack of experience amongst the farmers in practicing such activity,</p> <p>lack of training programs to increase workers skills,</p> <p>increase dependency on foreign labours</p>

### 1.8. Lack and instable intuitions, laws and regulation:

	Lack of stability in intuitional, laws and regulation
interviews	
Official A	Sector's administrative structure has been changed several times... Ministry makes the decision of change under some circumstances such as the size of budget and the re-distributing the tasks and powers of some units, and sometimes the changes comes from higher levels of administration such as the General People's Committee. Unstable in the administrative structure would cause an insecure job feelings amongst the employees ...lead to low efficiency of their performance ...reflected negatively on the efficiency of the sector ... Huge amounts of budgets have been missing and we found difficulties to chase them because of these changes. Authority of sea wealth is suffering from continual change in its structure ... There is lack of stable management ... There are still many constrain outside the scope of our administration, for example the ownership issues, taxes and employment rate of Libyan nationalities
Official B	The complicated procedures and regulations accompanying owning or utilization of coastal lands....
Academic A	There were problems related to the lack of stable measures and legislations.
Academic B	there are fluctuations in the allocations to the agricultural sector from year to year ... Lack of stability in governmental actions and issues has discouraged investors
Expert A	Department of (Fish farming projects), that was responsible on managing the sector of fish farming, was followed the Marine Biology Research Centre administration, but this has changed now and the fish farming project institution become directly under the administration of the Ministry of agriculture. Other difficulty is the insatiability of laws and regulations ... Continual change in institutions interrupts the activity, because it leads to considerable waste of time, and causes mismanagement of the sector's administrations.. Roles and the actions should be stable ... It is not a good way to encourage people to work in such hard activity... This affects the worker in marine aquaculture, and hinders the development of the sector in general ... Procedures are very complicated and the actions are very slow ... Actins, procedures, Laws and legislations. All of these conditions are made to it hard to the private sector
Expert B	Government has established the Ministry of Marine Resources in 1988 to manage the aquaculture sector, and then formed an independent body for aquaculture, and then it has been replaced in 2001 with the National Institute of maritime investment. In 2005 government has formed a new department within the Institute known as the management of aquaculture development. Unstable economic environment, and institutional environment make the investment in Libya type of risk;
Non government	

documents	
FAO's achievement in Libya 2011	There is institutional instability ... The development has particularly been hampered by lack of viable institutions, instability and rapid and frequent institutional changes in the sector .... A Ministry for Agriculture, Animal and Marine Wealth was re-established in 2006 following almost 16 years of disaggregation of authority within the sector
National medium term investment program	rapid changes in laws and directives .... the lack of stable and effective agricultural institutions at all levels has been frequently cited as the most important factor that has led to the inefficiency of the agricultural sector  Lack of clear definition between centralizing and decentralizing responsibilities resulted in the absence of capable institutions.. Which lead to instability and loss of responsibilities .... Legislative conflicts with international norms, especially those related to ownership and property rights
planning for aquaculture development in Libya	A legislative framework for the aquaculture sub-sector can hardly be said to exist... there is need for major revision and upgrading of legislation pertaining to aquaculture
marine wealth sector (development planning overview (Libya)	Several restructurings of parts of the Secretariat of Marine Wealth organization among the Fisheries-related legislation and decisions there is no mention to aquaculture sector .... The legislative basis for aquaculture in Libya is very weak ... Inadequate implementation standing laws, regulations generally
national Agricultural Policies	administrative red tape and the unstable and elaborate procedures
Government documents	
Libya at the dawn of new era:(2006)	frequent changes of policies make it difficult for business and individuals to work .... Regulation quality relative to MNEA countries (-38%).... constrains imposed on the privates small investments
Evaluation of agricultural policies (1970-2000	the lack of administrative and institutional stability has negatively affected the efficiency of national experts and the system of documentation and information .....Government policies are lack of stability especially in regarding to pricing and marketing.... Exportation of agricultural products need six months to obtain license to export..at current time government is working to reduces the regulations imposed on agricultural exports ... complicated administrative regulations in imports of agricultural requirements and supplies
General frame of agriculture sector 1994	Lack of stability of administrative structure of agricultural projects ..... Instability of administrative bodies of the agricultural activities .... Marine sector is suffering from instability of a administrative structure and the overlapping bodies specialties .... Too many constrains imposed on private agriculture business especially in marketing, importation and exportation process.

National Economy Strategy	Frequent changes in the institutional landscape
report of agricultural development (1970-2005)	There is a real problem facing agriculture sector regarding to the continual change in the administrative and institutional structures .... Lack of stability of administrative structure of agriculture institutions
development conducted in marine fishery and fish farming sector 2008	the lack of stability of the fish farming projects institutions declined its efficiency in developing and operate the activity. Government has been set technical policy in 1991 for the implementation of Law No. 14 issued in 1989 on the exploitation of marine resources, allowing the development of fish farms and the issuance of licenses. But this law has faced many constraints in amplification regarding to difficult administration processes
Findings	<p>in this regard the finding show some important issues:</p> <p>lack of institutional stability and there is a continual change in the administrative and institutional structures</p> <p>Government policies are lack of stability especially in regarding to pricing and marketing</p> <p>instable and complicated administrative regulations</p> <p>The legislative basis for aquaculture is very weak,</p> <p>Inadequate implementation standing laws and regulations</p>
<b>1.9. Lack of sufficient marketing system</b>	
	<b>Lack of sufficient marketing system</b>
interviews	
Official A	Marketing system which is not sufficient.... There is lack of availability of appropriate local markets. Years ago there was a big problem in regarding to the marketing of agricultural products when it was controlled by the National Company of agricultural marketing, but however marketing become much better after the dissolution of this company and its abolition it... There are many appropriate local markets, small open local markets...there is big scale projects of fish markets ....there are plans to build others in other areas.

Official B	
Academic A	Government has revised some of its policies in marketing system, when it decided to close the national company of agricultural products... when it decided to give the private sector more role in operate the sector. Marketing system is largely disabled or weak ... Emergence of the black market....Instable and an efficient marketing system... There is a high demand on fish in the local consumption areas... The imported of fish production fill the local markets.
Academic B	Problems related to the marketing system which is considered insufficient whether in the lack of skilled management of marketing system, or in the lack of infrastructure and related facilities ... There is the absence of correlation between price policy and marketing policy
Expert A	Marketing system is not sufficient.. and most of fish farmers having difficulties in marketing their production ... local markets are very small and lack of required equipments
Expert B	Local fish market is still insufficient despite the improvement in the infrastructure, it is still very traditional. Developed markets are limited at the big cities, while the local areas are suffering from lack of marketing facilities and infrastructure.
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	Agricultural exports are negligible, despite official efforts to enhancement them, and are limited to exports of potatoes, onions, dates and fish to neighbouring countries.... Agricultural marketing in Libya has suffered from mismanagement that hampered efficient utilization of the existing excellent roads and communication networks.
planning for aquaculture development in Libya	General lack good post-harvest handling practices ... efficiency of the marketing system could be considered low by all standards,
marine wealth sector (development planning overview (Libya)	Considerable efforts have been made to improve distribution and marketing facilities and thus to encourage consumption of fresh and processed fish, including networks ... chill stores ... there are deficiencies in present methods of fish handling, processing, and distribution
national Agricultural Policies	Libya's agricultural trade policy is among the most restrictive in the world ... some progress was made in 2004 to liberalize Libya's trade regime. Tariff rates were reduced to a maximum rate of 100 %, resulting in a decline in the simple average tariff to 17.8 percent.

Government documents	
Libya at the dawn of new era: (2006)	Lack of access to international markets ... limited customer orientation and marketing
Evaluation of agricultural policies (1970-2000)	The marketing and pricing policies in (1970s & 1980s) aimed to too reduce the input cost and to increase to farmer's income ... Marketing system faced a critical problem of lack of information in regarding to the supply and demand. Centralization system of the National Company of Agriculture
General frame of agriculture sector 1994	Marketing is insufficient ... Marketing policies are insufficient due to lack of information about demand and supply
National Economy Strategy	system of price controls has fostered a price-driven market with very little attention to quality in most agricultural segments ... Libya's agricultural sector is poorly adapted to international markets ... There are insufficient functioning warehousing and distribution systems ... Poor infrastructure for the storage ... packing, handling and transport of fish creates delays and has a backlash effect on quality
report of agricultural development (1970-2005)	Lack of attention paid to diversify fish products to increase the increase consumers appetite for fish ... There is a notable lack of sufficient marketing policies that based on scientific grounds ... State intervention in the marketing process reduced the efficiency.... Fluctuation of the supply of agricultural goods between the surplus and the inability of deficit due to poor management of agricultural production and lack of marketing policies
development conducted in marine fishery and fish farming sector	There is no substantial domestic market for aquaculture products in Libya, and the per capita consumption is very low. Therefore, farmers prefer to export the entire production abroad ... the only developed fish market in Libya is (Bab Albahar) the Sea Gate, which has laboratory to test and monitor the fish, 8 cooling rooms and 3 units for the manufacture of ice, this market receives daily doses of between 3 and 4 tons of different species of fish caught either in Tripoli or in other coastal areas of the country such as Benghazi..
Findings	There are insufficient marketing system... and the lack of appropriate markets... whether in related to the infrastructure, facilities or to the management of the marketing system.  lack of access to international markets  Lack of infrastructure in the local markets for the storage, packing, handling and transport of fish and lack of post-harvest handling practices.  lack of information in marketing system

	marketing policies is lack of scientific visions some progress been made in marketing system with the reforms of Libyan economy since 2004
<b>1.10. Lack of sufficient infrastructure:</b>	
	<b>Lack of sufficient infrastructure:</b>
interviews	
Official A	Sector still need very strong infrastructure... Lack of related facilities, such as ports, appropriate fish markets, training centres, local services... people would not be interesting in this activity if the related facilities are not available... There are several projects of improving the fishing ports across Libyan coast, and this will indeed improve the fishery sector.
Official B	
Academic A	Lack of facilities and services in the rural areas... Rural areas are still neglected ... Lack of integrating between development plans for the different aspects of the socio-economy... planning for marine fish farming in the rural coastal areas should be accompanied with planning for the economic and social infrastructure in that regions to provide them with the facilities and services ... lack of efficiency of agricultural services in the rural areas,
Academic B	There is lack access to affordable physical infrastructure, most of rural areas suffered from lack of infrastructure.
Expert A	Government has established physical infrastructure for marine fish farms... but it is not sufficient ....lack of related facilities near by the locations of fish farms ... We have applied for the modern technology to established new farms but we still did not receive any response.
Expert B	There are several developments in the current period, particularly since the beginning of the process of economic reforms started in 2000s, especially in the field of infrastructure...
Non government documents	
FAO's achievement in Libya 2011	Heavy investment in wide-scale development of good infrastructure in terms of electricity, roads, dams, reservoirs, and communication network ... there are inadequate facilities ....

National medium term investment program	Libya has witnessed wide-scale development of good infrastructure in terms of electricity, roads, dams, reservoirs, and communication networks ... Maintaining the road network is a major challenge facing the Libyan authorities. There are not too many harbours on the Libyan coast. Fishery and fish farming sector suffering from low investment in infrastructure and capacity building compared with the other agricultural sector ( less than 10 percent) ... inadequate export infrastructures in terms of handling packaging, grading, standards and quality control, etc
planning for aquaculture development in Libya	At the present time no hatchery facilities have yet been developed to a fully operational stage...lack of physical installations and provision of technical support agencies..lack of maintaining of existed installations ... lack of existing aquaculture-related establishments and facilities
marine wealth sector (development planning overview (Libya)	Libyan government has started since 2003-2004 to establish several ports with related facilities to facilitate the fishery and fish farming industry.....These projects are still ongoing...
national Agricultural Policies	agriculture research include seven faculties of agriculture and veterinary medicine have limited involvement in the formal development process ... improvements in productivity remained low despite the strategic orientations of agricultural development insisting on the need for modernizing and improving agricultural technical level
Government documents	
Libya at the dawn of new era: (2006)	poor quality of physical infrastructure
Evaluation of agricultural policies (1970-2000	agriculture infrastructure needs more efforts to serve the sectors of agriculture . Fishery and fish farming industry lack of required infrastructure such as ports and related facilities in the coastal areas.
General frame of agriculture sector 1994	The un-finishing of the infrastructure of some critical projects. There is lack of related facilities mainly laboratories and centres, laboratories, veterinary and marine biology laboratories ... Marine and fish farming sector is facing notable lack in infrastructure
National Economy Strategy	Basic infrastructure such as roads, water supply and electricity to agriculture is sufficient ... Processing capabilities and storage infrastructure are insufficient for all agricultural products, including fruits, vegetables and fish, in both scale and complexity ... The fishing industry faces problems of lack of scale and sophistication of operations... there are substantial gaps in certain areas such as supporting industrial infrastructure ... Regional extension services are limited, while crop insurance services are virtually nonexistent.
report of agricultural development (1970-2005)	There is lack of fish industry based on fish production such as fish canning factories

development conducted in marine fishery and fish farming sector 2008	<p>The exit infrastructure is not efficient to develop the activity of fish farming sector... since 2000s there were many projects of establishing new fishery ports, fish markets, establishing of number of guidance fish farms and establishing factories to produce fodders</p>
Findings	<p>Through analysis of the data it seems that there are disagreements in regarding to agricultural infrastructure were some is arguing that there are a good infrastructure especially in regarding to electricity roads and water resources.. Others are mentioned to the insufficient agricultural infrastructure...</p> <p>However others referred to the lack of maintenance of the exist infrastructure.</p> <p>in regarding to fishery and marine fish farming it is clear that there is notable lack of infrastructure and related facilities</p>
<b>1.11. Cultural and social factors:</b>	
<b>Cultural and social factors:</b>	
interviews	
Official A	The around condition of Libyan culture and society it would be difficult to conduct a monitoring job if the efficient way... tribe structure of Libyan society control many of relationships with people in the government
Official B	Interest in practicing fish farming in the society of Aljabal Al-Akhdar is lower than the interest in other agricultural activities. tradition and culture are one the main drivers of people to practice specific type of livelihood in the rural areas, cultivation and animal husbandry is more than fishing and fish farming which is more in the coastal communities such as Derna, Susa, and Tobruk, Increase religious awareness regarding to avoiding what known as (Riba-based banks) ... lead to decrease the peoples tend to have this type of loans, marine fish farming is important sector that not been recognized by people
Academic A	There is might be lack of attention from local communities itself.... Culture of Libyans is not fishy... most of people in the rural areas are tend to a cultivation and pastoral professions. Libyan rural society is pastoral communities and dependent on rain-fed agriculture, especially in the east region of Libya. This does not mean there is no fishery industry in Libya, but comparing to the cultivation and animal husbandry fish comes third. So this might be part of the problem with marine fish farms. Knowledge about the cultivation of wheat and barley is higher than the cultivation of fish... marine fish farming are very important activity, but it is still not recognized yet by the Libyan society,
Academic B	Increase immigration of workers from agricultural sector to other sectors. Some reasons related to the Libyan society; the implication of sector's policies need a society that respects the laws and roles. And a society understands the sustainability. In regarding the fish consumption, I think

	<p>this is not big issue, where Libyan would consume fish if they find it highly available and cheap, for example chicken consumption was in same situation about 20 years ago, where people did not prefer chicken, but now it is in the top of Libyan dishes. Habits of food consumptions are generally change over time and with the development of societies ... There is also lack of availability of institutions provides this knowledge.</p>
Expert A	There is no kind of moral incentives for farmers...local people still not yet recognized the important of fishery and fish farming
Expert B	Lack of investment in the sector is due to the lack of knowledge amongst local investors about its importance and its economic profitability. lack of interest from local people to practice fishing and fish farming
Non government documents	
FAO s achievement in Libya 2011	
National medium term investment program	
planning for aquaculture development in Libya	Fish is not a particularly significant component of the national diet, as compared to meat and poultry.
marine wealth sector (development planning overview (Libya)	Traditions of fishing and fish consumption are not particularly strong features of contemporary national society. Despite that there significant rise in recent times from around 1.2 kg/yr reported in the early 1960s to about 6 kg/yr reported at the present time (1996
national Agricultural Policies	
Government documents	
Libya at the dawn of new era: (2006)	
Evaluation of agricultural policies (1970-2000	

General frame of agriculture sector 1994	Reluctance of Libyan citizens to exercise activity of fishing and fish farming
National Economy Strategy	
report of agricultural development (1970-2005)	
development conducted in marine fishery and fish farming sector 2008	
findings	<p>Some documents did not mentioned to the affect of cultural and tradition elements hinder the development of marine fish farming sector in Libya... however other documents and interviewees emphasised of the important of this factor. The analysis of data shows that Libyans are still not considering marine fish farming as one of the important agricultural practices. Fishing and fish farming come last in the priority of people who live work in rural areas.</p> <p>Fish is not significant component of the national diet, as compared to meat and poultry.</p>

## 2. Elements obstruct the practices of fish farms:

### 2.1. Financing problems:

	<b>Financing problems:</b>
Questionnaires	
farm 1	<p>Facing difficulties to obtain loans ... Interest value is high... Waiting for loan of (180.000) from 2007. Most of the problems are related to the complicated administrative process, Farm is suffering from lack of stability in production due to financing difficulties, High production cost...most of cost elements are Fodders and fingerlings... Employees in banks treating people unequally, I mean some people access to loans easily, but others not. Depend on personal relationships. Banking system is not sufficient. And its policies regarding to support farmers needs to revise. Fish farming needs big investment , so without financing support it would be difficult to establish and manage a farm effectively,</p>

farm 2	Facing difficulties to obtain loans... Interest value is high. it takes a long time to get it ... I think the system of agriculture banks should be changed, because it is very discouraging, complicated processes, Asking for too much guarantees ... the lack of loans facilities will make it harder and thus make investors reluctant to engage in activity, this will indeed lead to hinder the development of the sector. High production cost...most of cost elements are Fodders and fingerlings...
farm 3	We do not have any troubles in regarding to the financing issues because government is fund the farm. But my personal opinion about the financing institutions, especially agricultural bank, are that the services provided by these banks did not developed along with the developing of the farmers needs and requirements, Banks are still dealing with the policies of the sixties and seventies; the world is changing and developing around us, the banks must evolve accordingly, high production cost...most of cost elements are Fodders and spares of equipments
farm 4	Facing difficulties to obtain loans.... Interest value is high ... The banks are required too many kind guarantees, which not always available a very complicated administrative procedures ... Easy access to loans make the work in marine fish farming more stable and encourage the current workers to continue in this type of business, but this is not the case in Libya. High production cost...most of cost elements are Fodders and fingerlings...
farm 5	Facing difficulties to obtain loans... Interest value is high ... Complicated administrative processes ... Insufficient credit system especially from agricultural banks, Corruption because many people in the government take bribe from investors to do facilitate the procedures ... Without external fund resources we can't continue in such activity, especially in the first years. High production cost...most of cost elements are Fodders and fingerlings...
documents	
Annual reports of follow up fish farms 2004, 2005, 2006, 2007, 2009	Lack of fund by government for some public sector farms High cost of inputs....especially fodders and fingerling Lack of obtain compensation for farms that produce losses because of some state institutions, for example, the electricity company ... Difficulties in obtain exemptions in tariff by which enable them to reduce costs .... Many farmers failed to obtain loans from banks... Many farmers struggling to pay back the debts ...
Findings	the findings show the main financing problems are that there is a lack of funds by government for some public sector farms, the high cost of inputs, especially fodders and fingerling, the lack of compensations for the damaged farms and the difficulties in obtaining exemptions in tariff which enables farmers to reduce costs; besides many farmers failed to obtain loans from banks and many farmers struggled hard to pay back the debts.

## 2.2. Marketing problems

	Marketing problems
Structured interviews	
farm 1	Marketing facilities is not available in the farm....some of production is marketing inside Libya and most of it out side, mainly to Egypt ... there is no stability of local markets, Government policies regarding to the marketing system is not stable, fish markets are very insufficient .... there are lack of health conditions and lack of skilled managers....and it needs too much improvements to be able to receive the production from fish farms .... Also the government actions regarding to market the production outside Libya is very tricky and discouraging. The demand for fish is very high, so we do not have problems in selling all the production inside Libya, but we also look for better prices ... facing Problems marketing process in storage and transportation
farm 2	Most of marketing facilities are available in the farm..all of the production is marketing out side Libya mainly to Europe markets ... there is no stability of local markets. The size of local markets is very small and the prices are not stable, and it is much lower than the international prices .... we have no Problems in marketing process
farm 3	All marketing facilities are available in the farm .... Production is marketing inside Libya ... there is stability in local markets .... It is not sufficient, but it could receive farm production due to the high demand and low supply.Government involvements in the marketing process reduce its sufficiency, because it does not take the market mechanisms into accounts .... facing Problems marketing process especially with costumers and Intermediaries. Sometimes farm faces problems of accumulation of production ... this due to the lack of coordination and planning for future marketing, and the farm is producing without any marketing plans .... People related to the government involve without any official position in marketing of farm's, production even some times without letting us know.All marketing operation is done by government, but I believe making profits will encourage people to run such profitable business ... In the case of this farm the profit is not recognized as the governors sometimes decide to sell the production for nothing .... There is a kind of personal relationships, and If they keep going with this policy, the farm will fail in the near future
farm 4	Some of marketing facilities are available in the farm ... production is marketing inside Libya ... there is stability in local markets .... Local market is undeveloped regarding to the system and technology ... easily sell farm's production; Now days, markets become better, and could receive what the producers supply. The new fish market in Tripoli has encouraged many farms to produce more, including me and thus increase their returns. .... facing Problems marketing process in storage and transportation especially within the seasons of high production

farm 5	Some of marketing facilities are available in the farm ... Some of production marketing inside Libya and some out side mainly to Tunisia ... there is stability in local markets, In fish production, in general, there are lack of supply, prices is always high and demand is high as well, I there is no problem in the marketing fish locally ... Local markets is insufficient whether in equipment or in management. Facing Problems marketing process in transportation and with intermediaries .... hope if we could sell production from farm to direct consumer without the intermediaries
documents	
Annual reports of follow up fish farms 2004/2005/2006/2007/2009	Farmers are facing critical problems with the marketing issues... There is no sufficient markets where they can sell their products in the local areas ... fish are very delicate product that required a high degree of care during the transportation and handling processes. local marketing infrastructure is not effective especially for fish from the fish farms due to the locations of these farms were most of them are very far from local communities and local markets
Findings	Most of data resources clarify that there is stability in local markets, but however it is insufficient. Marketing facilities and infrastructure are weak Small size of the local markets Many difficulties involved in exporting production. in regarding to the marketing process of public sector farm; lack of coordination and planning for future marketing, and the farm is producing without any marketing plans People related to the government (personal relationships) involve without any official position in marketing of farm's, production

### 2.3. Technical problems

	Technical problems
Structured interviews	
farm 1	The source of problems in production operations are Fodders, fingerling, disease and natural enemies, lack of technical support , difficulties to access to fingerling,
farm 2	the source of problems in production operations are Fodders, fingerling, lack of skilled technical workers
farm 3	the source of problems in production operations are disease, fodders lack of skilled technical workers water quality and suitability ... Lack of stability in production is due to that lack of skilled workers, Water quality difficulties

farm 4	the source of problems in production operations are Fodders, disease
farm 5	the source of problems in production operations are Fodders, fingerling, lack of stability in production is due to the difficulties to obtain fodders and fingerling on time, Natural factor cause fluctuated morality percent of fish yield
documents	
Annual reports of follow up fish farms 2004/2005/2006/2007/2009	Technical errors in tanks designs, Technical errors in pipes and water connections, Establishing the farms in inappropriate locations Neglect building fenders from waves. Water environmental problems. Lack of well equipments Continual disconnect to electricity,
Findings	farmers are facing different type of technical problems including: difficult access to Fodders, fingerling, disease and natural enemies, lack of technical support technical errors in the tanks designs, the technical errors in the pipes and water connections, the establishment of farms in inappropriate locations, the negligence of the building fenders from waves, the inconsideration of the water environmental problems, The lack of good equipment and the lack of supporting services such as electricity.
<b>2.4. Other problems:</b>	
	<b>others</b>
Questionnaires	
farm 1	Economical infrastructure in the rural areas is relatively lower than the standard levels, such as insufficient roads, lack of local facilities, lack of communication infrastructure,
farm 2	Economic climate in general still not appropriate to attract investors who seek for large scale business.there is lack of infrastructure and facilities Despite the current reforming in the economy and the relatively positive trend of government to open more opportunities for the private sector; but this actually has not improved the economical climate for private investors in the level that encouraged thousands of them,
farm 3	Lack of infrastructure in related to the rural areas where farms has been established, there is also lack of developed facilities and services system...Lack of developing programs of local communities in the rural areas around marine fish farms. This will discourage the youth to involve in such projects, whether if they run their own project or work in others projects. Lack of training programs for farmers whom already

	<p>work in the activity, or for who want to involve in the future. There is a notable reluctance from the local community to exercise this activity ... I don't know why? Might because of the lack of knowledge about the sector, or might because of local traditions which trend to other agricultural activities. The negative involvement of government in farm's operation ; for example, last year we some farmers have booked in advance quantities of fingerling, but when the production was ready, we received a call from the ministry tell us to not sell the production to those farmers, because they have sold it to others. This actually has affected our credibility with costumers. There are transactions carried out by the government and we cannot interfere on it, although we know it is suspicious. for example two years ago, farm has been supplying equipment, the cost of the them on documents were around 750 thousand dinars, and since we are experts in the operation process , we full know that the real cost is not more than 100 thousand dinars. But we cannot intervene; the state is that who paid this money. Government regulations and actions are not stable, for example this farm has been controlled by the general authority of investment. , then it has changed to be under the ministry of agriculture. This actually affecting the sector's stability as well.</p>
farm 4	<p>lack of required infrastructure and related services There are a lack of practicing of this activity, I mean people are prefer to do other agricultural activity or going for fishing but they avoid to involve in such activity, and I think it is something related to availability of knowledge about it as a profitable business. Also local communities are undeveloped, most of them practicing cultivation and animal husbandry because it's the profession of their parents. Tricky conditions and regulations on importation and exportation procedures, Spread of corruption the different administrative levels, The continuous change in the regulations and laws in related to the sector</p>
farm 5	<p>The difficult conditions imposed on the private investor's hinder our ability to extend our farm operation, it also hinder more people to involve. Lack of effective ports and transportation facilities, and the necessary services in the rural areas. The lack of attention of governors to the importance of this sector to Libya's national income. Corruption amongst the government administration which lead to the insufficient exploit of the effort to improve the sector. For example they are steeling the budget that allocated for build some related infrastructure; this indeed will affect the sector's development.</p>
documents	
Annual reports of follow up fish farms 2004/2005/2006/2007/2009	<p>Mismanagement of farms Lack of monitoring responsible bodies. Negligence of farms of public sector to destruction Multiple institutions and bodies responsible for state farms and overlapping its specialties Difficulties in obtaining inputs on time, Lack of coordination between responsible authorities Lack of maintaining procedures. Difficulties of obtaining licenses to practice fish farming Experts mentioned to the gap between farms registered and farms on the ground...unfinished farms...and stolen farms (corruption) lack of ports and lack of suitable transportation</p>

Findings	<p>Number of issues emerged from analysis the data, some are directly related to practicing fish farming activity, and some related to the efficiency of the marine fish farming sector:</p> <p>problems facing the practicing marine fish farming are mostly related to the management of farms such as :</p> <p>Mismanagement of farms negligence of the farms of the public sector, difficulties in obtaining inputs on time, the difficult conditions imposed on the importation of inputs, the lack of maintaining procedures of farms and the negative involvement of government in farm's operation</p> <p>problem hinder the development of marine fish farming sector:</p> <p>lack of developing programs of local communities in the rural areas</p> <p>lack of infrastructure and facilities</p> <p>Lack of training programs for farmers</p> <p>There is a notable reluctance from the local community to exercise this activity</p> <p>Corruption</p> <p>Lack of monitoring responsible bodies.</p> <p>Multiple institutions and bodies responsible for state farms and overlapping its specialties</p> <p>Lack of coordination between responsible authorities</p> <p>Tricky conditions and regulations on importation and exportation procedures,</p> <p>Difficulties of obtaining licenses to practice fish farming</p>
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## 8.6. Appendix (6)Data Analysis Part (3):

### 1. General perspective of productivity and efficiency (through interviews and general documents)

	The state of marine fish farming sector efficiency
interviews	
Official A	Libya is far in behind in this field,....Production is still very limited, but however in 2008 the total production reached 300 tons from a few number of farms....economical production from marine fish farming is still inconsiderable..
Official B	
Academic A	The sector is undeveloped, the productivity is low, the efficiency is low, the out puts is low....Its practices are very limited, and the fish production is very low. Sector is showing lower performance... Sector is lagging behind ...comparing to the other economic sectors. Marine fish farming is the worst. Fish production from marine aquaculture is not recognized....Its position among other sectors, it located in the very late order. bad performance of marine aquaculture .... practices of the marine fish farming in Libya are truly failing sector
Academic B	The sector is very weak..... The sector is insignificant, comparing to other agricultural scopes. ....Fish production from sector is insignificant...
Expert A	there are a decrease in the number of fish farms, ... Marine fish farms are low capacity, low efficient, and its fish production are very low...
Expert B	There is a decrease of fish farms although other new farms have been established. ... There is low growth in the sector's projects. The sector still, economically, undeveloped. The clear evidence of that is the continual failure in many fish farming projects,
Non government documents	

FAO s achievement in Libya 2011	weak performance of agriculture sectors, fishery and aquaculture
National medium term investment program	low performance ran almost across all sub-sectors of agriculture ....poor performance of the fishery sectors
planning for aquaculture development in Libya	Although a start-up program of aquaculture has existed in one form or another since around the mid-1970s...but production still insignificant
marine wealth sector (development planning overview (Libya)	the sector productivity is low if comparing to other Mediterranean countries
national Agricultural Policies	Inefficiency that characterizes agricultural productivity in Libya .... productivity of the sector remained low
Government documents	
Libya at the dawn of new era:(2006)	Both public and private companies are relatively less sophisticated than regional peers .... there is lack of sophistication in production processes
Evaluation of agricultural policies (1970-2000)	Low contribution to the national economy... there is a lack of economic efficiency of agricultural projects ... very bad performance of marine fish farming
General frame of agriculture sector 1994	There is a lack of productivity of agriculture sector in general but there are a considerable achievements in the different scopes of agricultural sector
National Economy Strategy	Factor conditions for agriculture, livestock and fisheries in Libya — other than the existence of basic infrastructure and access to potential export and cheap labour markets appear to be weak
report of agricultural development (1970-2005)	Agriculture sector is insufficient comparing to countries in the region. ... Efficiency of marine sector including fish farming is very low .... Fish production from fish farming is inconsiderable
development conducted in marine fishery and fish farming sector	The growth of the sector is very low, and the production is insignificant.... The fish farming sector efficiency is very low. ....Libya is the least productive in the aquaculture sector between the Mediterranean countries despite the availability of potential natural

2008	shores in Libya qualify better practices of marine aquaculture than many other Mediterranean countries.... From 704 farms there are only 13 fish farms are exist
findings	<p>Marine fish farming is inconsiderable agricultural practices,</p> <p>Bad performance of marine aquaculture comparing to other agricultural scopes.</p> <p>Low efficiency, low growth rates.</p> <p>Marine fish farming is economically undeveloped. The clear evidence of that is the continual failure in many fish farming projects, and gradual reduce in the number of operating fish farms.</p>

## 2. More specific perspective of productivity and efficiency (through technical documents):

	report of preparation of fish farming plan 1984	Annual reports of follow up fish farms. (2004-2009)	planning for aquaculture development in Libya (FAO) 1996	finding
drivers of government interest in developing marine fish farming	<p>For the implication of the green book statement of No freedom for a nation that brings food from behind the sea, the Libyan government, with the continual support from the revolution leader to realize food self-sufficiency, decided to adopt this project to establish a number of fish farms and hatcheries in different areas of Libya, to serve</p>	<p>importance of fish farming in providing food to Libyan society in order to achieve independency of international world and realize self sufficient</p> <p>Importance of fish farming to the national economy through increasing the fish production in the levels of exportation.</p> <p>importance of fish farming</p>	<p>aquaculture fits as a component of a wider fisheries development plan which combines general strategies with specific policies and policy instruments in order to achieve national sectors objectives</p>	<p>Political ideologies is driven the government policies to develop marine fish farming sector.</p> <p>basically to achieve independence and realize self sufficient</p>

the number of planned marine fish projects ( governmental projects)	the nation aim.	in provide work opportunity to the national workforce	report identified 15 location in the Libyan eloping marine fish farms several major new projects now under implementation	there is delay in the establishment of planned marine fish farming despite the field studies that identified the suitable location and despite the availability of fund resources...this reflect lack of clear planning visions
the number of exist marine fish farms	-----	3 of 8 government projects have been conducted between 1988 and 2004; one has been completely destructed more than ten years ago. One has been privatized in 2005. One established in 2004 and still well working.	3 large scale fish farms (public sector projects)  no mention to private sector	17
the number of farms operated at the current time	-----	the previous statistics, back to many years ago, done by ministry of agriculture mentioned to the exits of 174 marine fish farm on Libyan cost  according to this survey we found only 17 marine fish  5 (1 public sector /4 private sector		In 1996 there were 3 large scale public sector farms in 2004 -2009 there is only one public sector scales and it was not exist in 1996 it established in 2004. all three public sector farms has failed  4 private

the number of farms out of operation	-----	12	-	12
the state of the farms operated (farm efficiency)	-----	farms are fluctuated between working well to struggling and some farmers manage to keep operate despite the low efficiency	working very well  (in that times of 1990s ...	In 1996 the three public sector farms was working very well. by 2004-2009 all of them has become out of operation  the 5 farms are farms are fluctuated between working well to struggling

### 3. The state of marine fish farms (analysis of questionnaires with pictures):

From the site visits that the researcher made in 2009/2010, there were two farms operating very well from the total of five farms; one of them is well operating. From the two low productivity farms, one stopped operating during the next year of the first visit. The only two successful farms were well-equipped and they were from the type of large scale business. One of them is under the public sector, and the other one is under the private sector (belongs to Saif Qaddafi). The rest of the farms belong to the private ordinary Libyans.

#### 3.1. Farwa farm:

(The manager gives me the permission to walk around and to take some pictures.). This farm was established in 2004, despite the fact that the planners have planned these projects since 1990. The main activity of this farm is to breed and hatch marine fish. It covers an area about 0.5 Hectare. It was under the administration of a Libyan-French Marine Aquaculture Company; however this administrative body has no longer directed the farm since 2006 when the role was transferred to the National Project of Development of Aquaculture. The farm is very well equipped as evident from the pictures. The main facilities are:

- 20 concrete tanks
- 54 fibber glass tanks
- 2 earth ponds
- 15 floating cages
- Several buildings
- Very advanced equipment
- high technological hatchery
- Cooling complex,
- Ice producing equipment
- Laboratory
- Other supporting facilities (transportation storage cars and boats)

There are 28 workers but most of them lack the required skills; there is lack of training programs for farmers. Despite its high productivity, the farm sometimes faces problems in the production operations, such as diseases, fodders, lack of skilled technical workers, bad water quality or unsuitable one. The lack of stability in production is due to the shortage in skilled workers, wages and benefits that encourage workers to increase their productivity.

**Figure (1) farm buildings:**



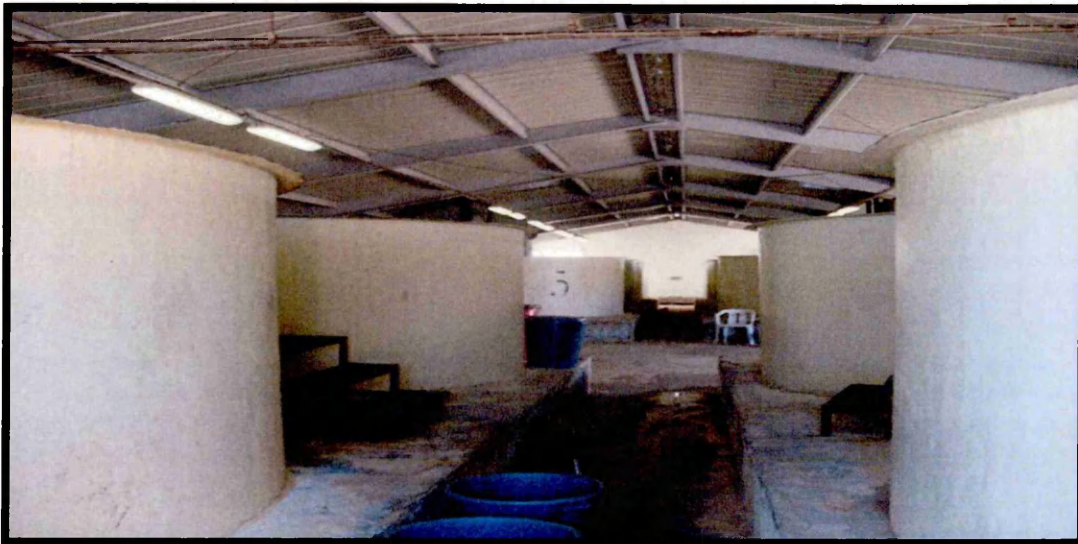


Figure (2): Workers accommodations and marketing units:



The cost of production is high; most of the costly elements are fodders and the spare parts of equipment. But the farm has not yet faced any financial difficulties because the government is directly funding the farm operations. All marketing facilities are available in the farm. There is stability in the local markets. Though the production is not sufficient, it sometimes faces a problem of accumulation of products. This is due to the lack of coordination and planning for future marketing. In fact, the farm is producing without any marketing plans, but local markets generally receive the farm products due to the high demand and low supply. The government involvement in the marketing process has reduced its sufficiency, because it does not take the market mechanisms into accounts. Governmental officials get involved in marketing the farm's products without any official capacity, even sometimes without letting others know. There is a lack of infrastructure in the rural areas where the farm was established. There is also lack of developed facilities and service system, around the farm. The nearest health care centre is about 20 kilometres from the farm. There is also lack of developing programs for the local communities in the area around the farm. In general, the farm is characterized by high productivity. It produces sea bass, sea bream fish and fingerlings. The production is sold locally

**Figure (3) farming units from inside, breeding, hatchery, feeding and other units:**





**Figure (4) modern technology (Water desalination, Oxygen generator, Electric generation and others):**





**Figure (5) farming systems: (tanks, and cages):**



### **3.2. Elsibkha farm:**

(The farm manager did not allow me to take pictures due to the sensitive status of farm location; I was not allowed to enter with my camera).

The farmer lends the land from the military; the farm is located on the military base on Maitiega Air Force. This marine fish farm was established in 1997. It is directed by a private company which rented the land from the government, it considered a small scale business. The main activity is the breeding and hatchery of marine fish (sea bass and sea bream) together with some secondary production of Tilapia. There are 10 workers on the farm, three of them are viewed skilled (one Libyan and two Egyptians, specialists in aquaculture), but the rest are ordinary workers. The farm is properly equipped; there are 2 computers on the farm with no internet service. The main facilities inside the farm are:

- Hatchery (partly operating)
- Cooling complex (not completely established)
- Ice producing machine
- 10 Fiberglass tanks (only 2 are operating to hatchery Tilapia)
- 6 concrete tanks
- 4 earth ponds (only one is operating)
- Laboratory
- A Number of buildings.

The owner depends on his personal savings to finance the projects, also on loans from the non-agriculture banks, and he faces difficulties to obtain loans. The production is usually stable; fluctuating between 50-70 tons per season, though it sometimes faces problems related to getting fodder on time, due to the complicated procedures imposed on importing them. The operation cost is very high especially in terms of fodders. In the past, the farm was facing difficulties with fingerling as well, whether due to the high cost or due the complicated importation procedures, but currently the effect of this factor has been reduced after operating the hatchery of Tilapia, but the farm still faces problems with sea bass and sea bream fingerlings

The farm sells its products inside Libya, to the local markets. Despite the high costs, the farm is able to procure good level of profits. The local markets are considered undeveloped and small compared to other countries, but due to the lack of supply and the high demand on fish, the farmer does not face problems in marketing his products. Sometimes, the farmer faces problems regarding the availability of storages and transportation in the high production seasons. In general, the farm operates well, but its productivity is much lower compared to the previous farm of Farwa.

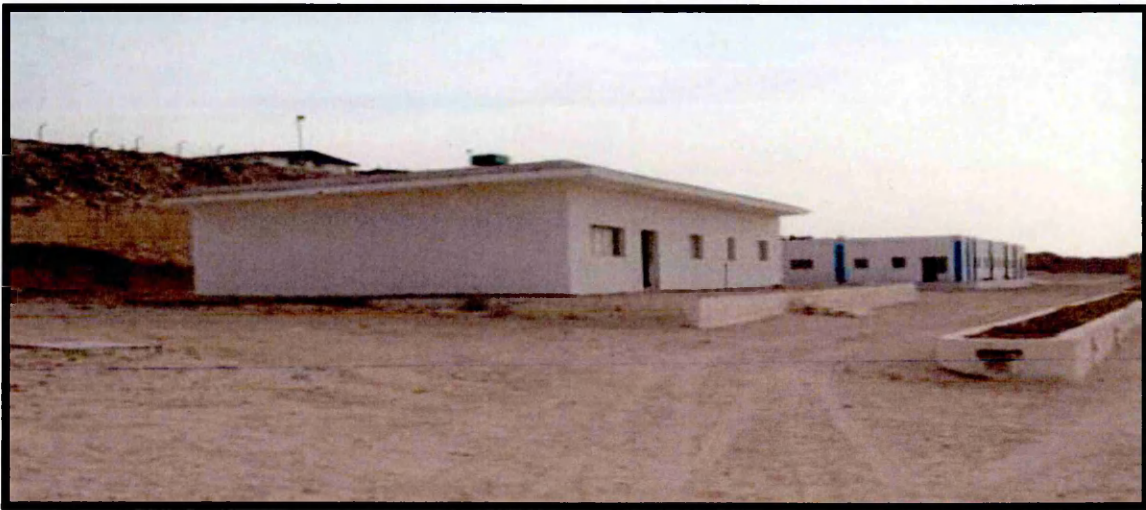
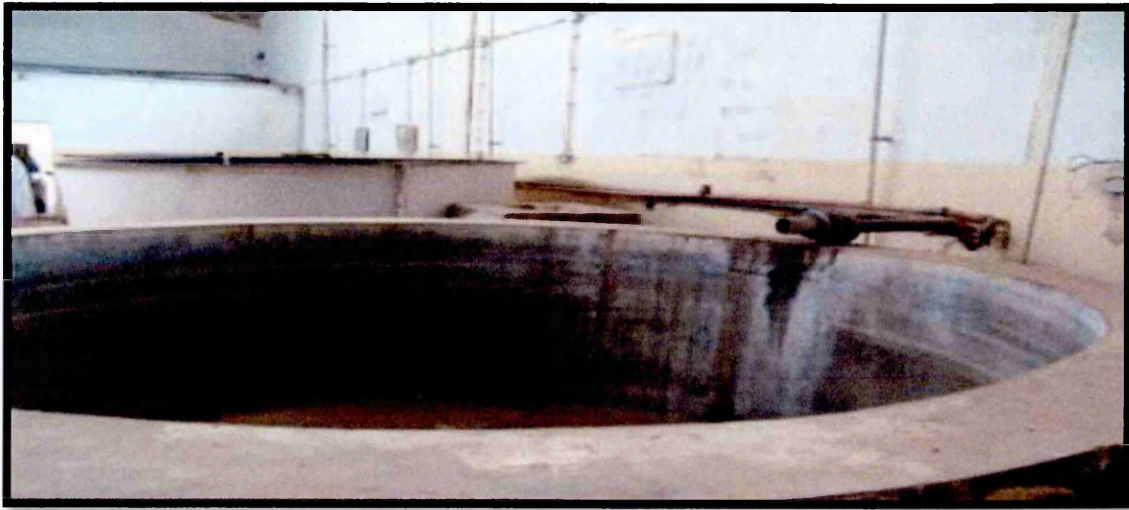
### **3.3. Benewiada:**

This marine fish farm was established in 2004. It is directed by the private sector, an individual owned the land. It is considered as a small scale business. The main activity is breeding the marine fish (sea bass and sea bream), along with some secondary production of mullet. There are five Egyptian workers on the farm. The farm lacks certain facilities; most of them are used with low capacity. The main facilities inside the farm are:

- Some buildings are for workers and storages
- 5 earth ponds (only three are used).
- A Number of fibber glass tanks (not used yet)
- A Number of concrete tanks (not used yet)

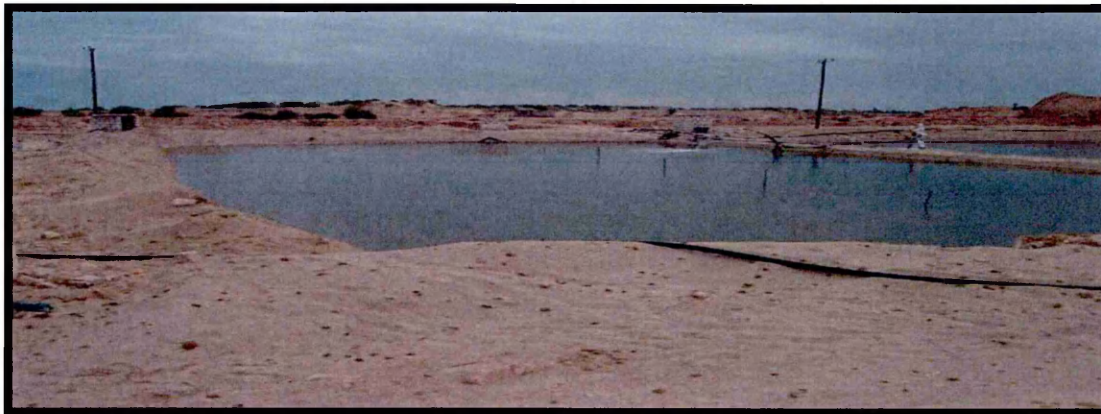
The owner depends on his personal saving and on loans from non-agriculture banks to finance the projects; in fact, he is facing difficulties in obtaining the loans. Production is unstable but it amounts 10 to 15 tons in a season. In some seasons, the farm does not have any product. The main problems are due to the difficulties in obtaining fodders and fingerling on time. Also, the natural factors cause fluctuation in the morality percentage of fish yield. The operation cost is very high; most of the costly elements are fodders and fingerlings.

**Figure ( 6 ) some buildings and the unused fibber glass and concrete tanks:**



**Figure ( 7 ) Earthen ponds:**





The farm sells most of its products inside Libya, and some are sold abroad mainly in the Tunisian markets. Despite the high costs, the profits are not bad. The local markets are considered undeveloped and small compared to the fish market in Tunis for example, but it can still receive most of the farm products due to the high demand on fish. The lack of marketing facilities including transportation is one of the farmer's sources of concern, also the intermediaries who are irresponsible; more often, they fail to comply with the contact conditions or to complete the sale deal process. In general, the farm operates with low productivity, which is much lower than that of the two previous farms

#### **3.4. Rass Al-Hilal:**

(The security at the farm's entrance did not allow the researcher to enter the farm; she was only able to take pictures from outside the farm).

The interview was conducted with the director in his house in Shahat city. This farm was established in 1999. The main activity of this farm is breeding marine fish. It is owned and directed by a private joint stock company (Rass Al- Hilal Company of Marine Investments that indirectly belongs to Saif al Islam Qaddafi). The farm is very well-equipped with two self-feed floating cages (Farm Ocean), whose capacity exceeds 4500 cubic meter. There are also 4 circular floating cages with a capacity of 4000 cubic meter and 2 with 500 cubic meters. The building on the land is limited to fodder storage and to small houses for the workers and the security staff. There are also some other facilities such as boats and cars.

There are 6 workers, some of whom are specialists in aquaculture while the others are ordinary workers. All are Libyans. The farm is characterized by high productivity that exceeds 250-270 per season, which is considered the highest. The farm sometimes faces problems in its production operations, mainly due to the late access to fodders and fingerling and the lack of skilled technical workers. There is stability in production.

**Figure (8 ) the farm cages (4 floating cages, and 2 farm ocean cages):**



The cost of production is high but the profit is high as well. Most of the costly elements are fodders and fingerling. The farm sometimes faces financing difficulties due to the delay in obtaining loans, and the high interest value. It also takes a long time to get it. There farmer believes that there is no stability in the local markets. The size of the local market is very small and the prices are not stable. However, they are much lower than the international prices. Most of the marketing facilities are available on the farm. All production is marketed outside Libya mainly in the Europe markets. The farm does not face any problems in the marketing process. In general, the farm is operating very well. It shows the best performance amongst the other existing marine fish farms in the private sector.

**Figure (9) the port is established inside the farm with some small houses for workers and the owner relaxations:**



### 3.5. Ain Al-Ghazala:

(The owner gave me the permission to take pictures).

This farm was established in 1988; it was under the government administration (the Ministry of Agriculture, Animal and Sea wealth), but recently in 2005, the farm was privatized; it was owned by a local investor. Despite the millions that have been spent on the farm establishment and operations, and despite the high natural potentials available in that site, the farm capacity and productivity was very low.

The main activity on this farm is breeding the marine fish. The farm lacks the required facilities, and there is clear neglect of farm establishments. There are broken-down hatchery equipment and spares but some of them are completely destroyed. There are some buildings which look unsuitable for the workers living, or for administration purposes but most of them are not used. The fodder and equipment storages are destroyed as well. There is no marketing facilities or any other services. Some broken-down cages

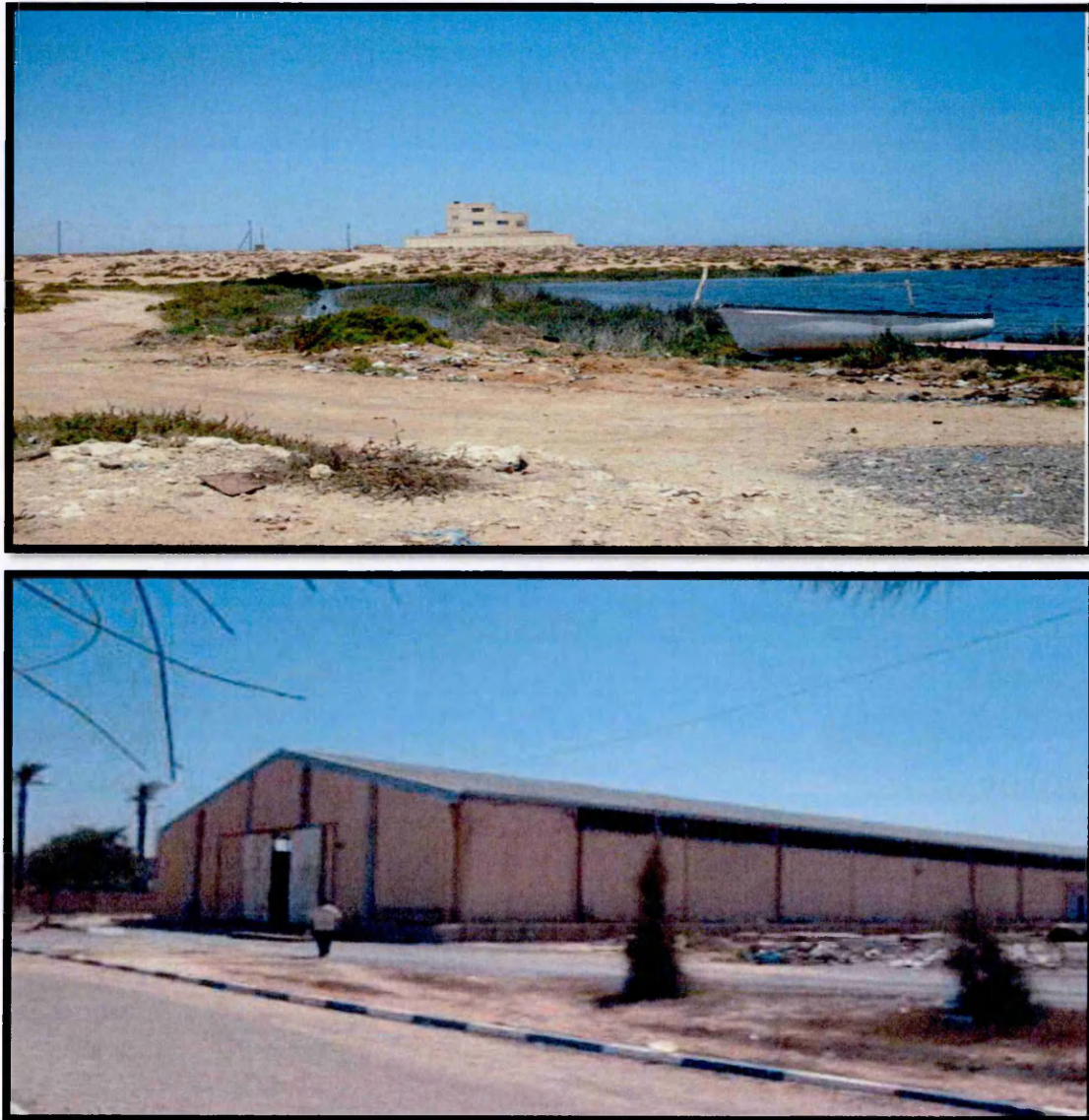
are found on the coast. The only things that work on the farm are one circular cage floating in the water and very old boats.

There are 3 workers: one Libyan and two Egyptians. The farmer faces difficulties in obtaining loans. He has been waiting for a loan of (180.000) since 2007. Most of the problems are related to the complicated administrative process and the different treatment of customers in the banking system.

The farm clearly suffers from the lack of stability in production due to the financing difficulties, the lack of technical support, difficulties in accessing fingerling, expansive cost of foddors and diseases. The cost of production is very high; most of costly elements are foddors and fingerling.

The marketing facilities are not available on the farm. Some of the products are marketed inside Libya and most of them outside it, mainly to Egypt. There is no stability in the local markets. The farm faces problems in the marketing process, in storage and transportation. There is a lack of infrastructure in the rural areas, lack of developed facilities and service system, around the farm. Overall, the farm was struggling, working with very low productivity in 2009. In 2010, the farm became out of operation.

**Figure (10 ) some old storage and the administrative buildings:**



**Figure (11) workers accommodations:**

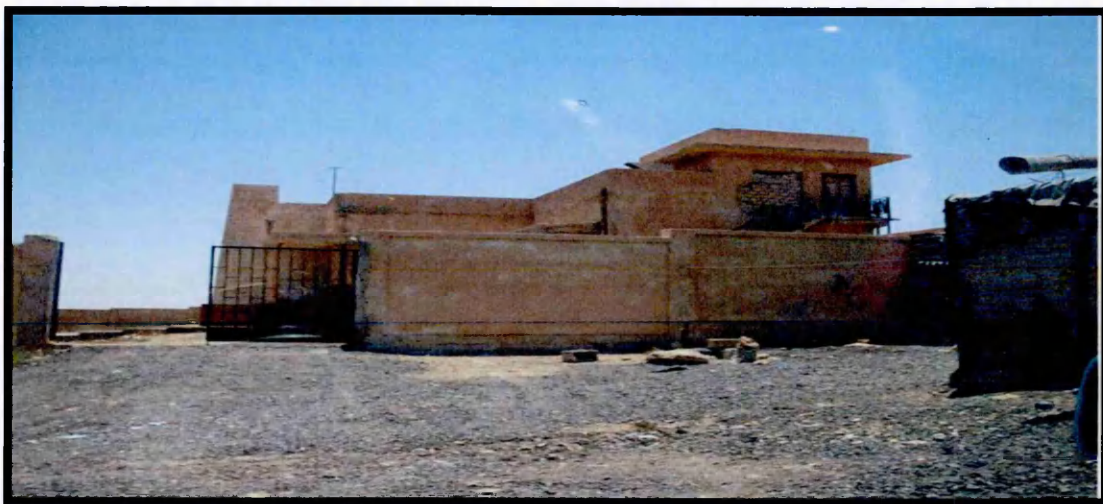


Figure (12 ) old boats, and broken- down cages;





## 8.7. Appendix (7): Data Analysis (part 4)

### Achievement of Development targets:

	Achievement of Development targets:
interviews	
Official A	The target of realizing self sufficiency is much higher than the agricultural potentials available in Libya. And the problem then appears when we failed to meet this target.... Modernize the agricultural sector, and food production in support of independence, in order to achieve self-sufficiency...diversify the economy ... Targets partly achieved.
Official B	
Academic A	There is no real development... traditional implications of agriculture... some machines but it is limited and very old virgin back to 1970s.... Until now the aims of development not fully meet... We do not yet see the realizing of these targets on the actual ground.... I can't say the agricultural sector did not realize all the targets or did not realize any progress; Government has encouraged the activity to serve the target of food self sufficiency, and also the other targets of creation jobs and contributing in the national income... The sector does not realize any of these targets... Plans have failed to achieve the target of food self sufficiency.... Libya cannot be fully self-sufficient in all food products ... Target in which is impossible to obtain, which the fully self sufficiency is in agricultural food... Where its contribution to the GDP is very low, There is a decrease in the contribution in the economy. To some extent, succeeded in increasing agricultural GDP but this increase was not reflected on the contribution of agriculture sector in the GDP ,
Academic B	The main purpose to develop the sector is to diversify the economic base, to reduce the dependency on oil, also to provide the local people with all the necessary food... Contribution to the GDP is inconsiderable ... The economic feasibility has not been achieved... Its contribution to fish production is insignificant, very low... Development targets not completely achieved regarding to self sufficiency... Social contribution is very low... There is no rural development in the local communities around the marine fish farms.... contribution to the GDP is inconsiderable,

Expert A	After about 25 years the farm of Ain Al-Ghazala could not realize the expected capacity of production.... contribution to the total fish production is very limited,
Expert B	the sector did not realize any of its targets, especially in the contribution to provide the local markets with fish, and the contribution to the economy ... the contribution to the fish production from sector is inconsiderable
Non government documents	
FAO s achievement in Libya 2011	Agriculture contributes to about 5% of the GDP and employs around 6% of the workforce.... inability of the agricultural sector with its current configuration and performance levels to satisfy the rising demand for food and to contribute to overall employment as desired.... Libya currently imports about 80% of its consumption requirement
National medium term investment program	Failure of all plans to increase food supply to achieve food security... agricultural sector could not satisfy the rising demand for food nor contribute to overall economic development as desired. ... the performance of Libyan fishery in achieving food security has been less than satisfactory
planning for aquaculture development in Libya	
marine wealth sector (development planning overview (Libya)	The contribution of service industries to national output has shown a marked increase in recent years and almost balances that of oil in GDP terms. The GDP contribution of Agriculture (including fisheries), on the other hand, has remained weak ... Libya is highly dependent on food supplies from outside sources..National fisheries and aquaculture sector thus provides for only a very small fraction - around 1% - of the total labour force for Libya ... Estimated fishery's contribution to Agricultural GDP likewise is fairly negligible, standing at around 10%..aquaculture contribution is insignificant
national Agricultural Policies	Government efforts have not yet resulted in meeting the Government ultimate objective of full food self-sufficiency as can be seen from the increasing food imports by the country ... the sector contribution to the whole economy is low and diminishing ... Although, the agricultural sector has been developing, the levels of output are still far from meeting the local demands as evidenced by the large spectre and quantities of agricultural produce that are imported by the country every year country imports more than 90% of its food needs ... The country only exports about 0.3% of its agricultural produce
Government documents	
Libya at the dawn of new era: (2006)	Agriculture contribution to GDP is still lower than that in the neighbouring countries

Evaluation of agricultural policies (1970-2000)	The targets of 1970s and 1980s: to large extent there was an increase in agricultural production... self sufficiency has been met in some agricultural products. The percentage of plans complementation rate of (1970-2000) was 25 %
General frame of agriculture sector 1994	Agricultural sector in general has failed to achieve most of the development targets.... Self sufficiency in vegetable and poultry has achieved.... Other agriculture products are fluctuated up and down ... Self sufficiency in fish production did not achieved..
National Economy Strategy	Despite heavy investment in the agricultural sector in the last three decades, including substantial investment in irrigation, the sector grew at just 2.4% annually... With the focus on self-sufficiency, potentially viable export commodities such as olives and dates are not exploited, and the only export growth area has been fisheries. Local supply is unable to meet the quantity and quality requirements of domestic demand and as a result about 75% of Libya's food requirements, including almost all processed and high-quality foodstuffs, are imported.
report of agricultural development (1970-2005)	Libya is considered one of the main food imports countries.... Self sufficiency of the most important agricultural products did not exceed 50% ... Sector has success to meet the target of self sufficient in some agricultural products ... mainly in vegetable, egg, and some fruits ... Meat has 80% achieved , fish is 25% achieved ... Contribution of fishery and fish farming production is inconsiderable
development conducted in marine fishery and fish farming sector 2008	marine fish farming did not contribute effectively to the fish production ... Production from fish farming is still unconsidered reached about 350 tons in 2008 comparing to 29,000 tons from natural fisheries
findings	<p>The targets of the agriculture sector are higher than the available resources, but this is not the case with the fishery and fish farming where the potentials are much higher than those of the other agricultural scopes (Cultivation and animal husbandry).</p> <p>Development targets of the marine fish farming sector have not been achieved, although some other agriculture scopes partly achieved some of these targets.</p> <p>Marine fish farms failed to contribute to increasing fish production; thus, it failed to contribute to realizing self-sufficiency.</p> <p>Marine fish farms failed to contribute to the economy diversification, where the sector contribution the GDP is insignificant</p> <p>Marine fish farming failed to contribute to increasing the number of workers in the agriculture sector.</p>