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NATIONAL AGRICULTURE POLICY - LIBYA

By

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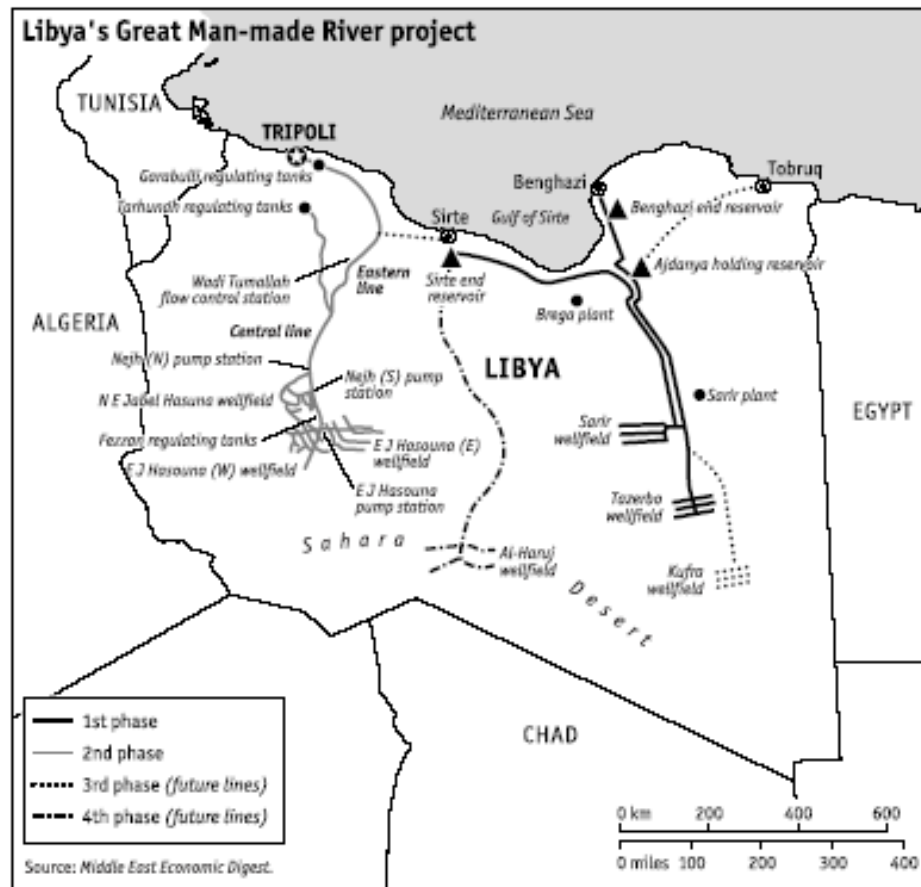
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Source: The Economist Intelligence Unit (2004) 'Country Profile/Libya'

Note: Many difficulties in finding relevant and concise information on Libya were encountered during the preparation of this report. According to IMF (2005), "Libya's statistical base suffers from important shortcomings in the quality, coverage, timeliness, and consistency of data that need to be addressed". This comment is truly indicative of the ambiguous and conflicting data reported in the various publications on Libya.

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List of Abbreviations

IMF	International Monetary Fund
AOAD	Arab Organization for Agriculture Development
GDP	Gross Domestic Product
LD	Libyan Dinar
HDI	Human Development Index
AU	African Union
WTO	World Trade Organization
NARS	National agriculture Research System
ARC	Agricultural Research Center
ASRC	Animal Studies and Research Center
MBRC	Marine Biology Research Center
SAW	Secretariat of Animal Wealth
SMW	Secretariat of Marine Wealth
pRYs	Potential Research Years
SESR	Secretariat of Education and Scientific Research
GMR	Great Man-made River

1. General Setting

Libya, The Great Socialist People's Libyan Arab Jamahiriya, is located in North Africa, in the Maghreb region, and a member of the Arab Maghreb Union. The country is 1 775 500 kilometers square and stretches for 1,770 kilometers with the second largest continental shelf in the southern Mediterranean seashore. It borders Egypt on the east, and Sudan, Chad and Niger to the south, with Tunisia and Algeria on the west. The total population reached about 5.4 million in 2002, of which 22 % are rural. The majority of the population lives in a belt along the Mediterranean coastline (AOAD, 2005; IMF, 2005). Compared to its North African neighbors, Egypt, Tunisia, Algeria, and Morocco, Libya has a small population, a much lower agricultural potential, but substantial energy resources.

1.1 Macroeconomy

Since Libya's independence, its economy has gone through major changes. The following three factors have had overwhelming effects on its evolution: 1) the discovery of large reserves of oil and exportation that changed the volume and structure of the economy, 2) the political changes implemented by the Government since 1996, and 3) the United Nations sanctions imposed in 1992, which were suspended in 1999, and lifted on 12 September 2003.

Libya began exporting its oil in the 1960s. By 2003, its GDP has increased more than 200 fold. The structure of its economy has changed from a poor, largely agricultural economy to a rich one dominated by the oil sector. The country has been transformed from one of the poorest nations in the world to one of Africa's wealthiest countries.

Since 1969, when Qadahfi'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' control of its production and export. The policies implemented of nationalization of the foreign oil companies, the confiscation of the agricultural land owned by Italian settlers, and the "libyanization" of the state administrative network, had resulted in the State taking control of almost all economic domains of the country. Export and import activities of all products were reserved to its authorities, and the private sector activity had been limited. Through its central and local People's Congresses, the State established legislation to assume the control of all educational and social activities, and of monetary, and economic sectors organization, investments, production, commercialization, and foreign trade.

Large money surplus from oil exports and Qadahfi's keen interest in economic diversification and social welfare has prompted large Government investments in agriculture and non-oil related industries. Reorganizing the construction and developing the manufacturing industries received a boost by investments in housing and large fabrication units, and by consolidation of small engineering firms. The five-year Government plan of 1981-1985 allocated LD 2.725 billion to heavy industry; 15 percent of the total plan allocation and second to agriculture at 17 percent.

However, the politics with other countries especially those of the West, the ill thought investment projects, and the scarcity or lack of well qualified Libyan human resources have not resulted in achieving the desired economic diversification and development (U.S. Library of Congress, uscountrystudies.com, 2005).

During the period of UN sanctions, oil revenues continued to flow into the country, the GDP continued to grow, the Government continued to maintain its control on the economy, but with some sort of a private sector developing involvement in trade of goods as an adaptation to the situation. Political and economic relationships with the West and with the Arab countries became constrained, more fragile, and erratic. Subsequently developments in the economy staggered. The freezing of the sanctions in 1999 and their lifting in 2003 allowed Libya to officially re-integrate the world community. Because of its oil wealth and the Government willingness and receptiveness to open and liberalize its economy and at the same time preserve its overall social system, Libya is attracting large international cooperation interest.

Gross domestic product

Because of Libya's economy heavy dependence on oil revenues¹, its GDP fluctuates closely with the world oil and hydrocarbon industry market prices and politics. Table 1a in appendix shows Libya's GDP in millions Libyan Dinar (LD) from 1960 to 2002. Table 1 below shows Libya's GDP in USD and other economic indicators from 1999 to 2002, and their IMF estimations for 2003 and 2004. Overall Libya's account balance has been positive since the discovery of oil. During the period 1999-2003, the oil sector contributed about 50% of GDP, 97% of the country's exports, and 75% of government revenue. However, the agricultural trade balance has always been largely negative. 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, and share of industry including hydrocarbons had increased to about 55%, and the services, 40 percent.

Table 1. Libya's GDP, account balance, export, inflation, and labour force during 1999 -2003

Item	1999	2000	2001	2002	2003(a)	2004(a)
GDP, billion USD	30.5	34.3	28.4	19.1	23.5	28.0
GDP per capita, USD:	5,931	6,539	5,322	3,517	4,232	4,930
Real GDP growth, % change	0.8	2.6	0.5	-0.2	4.6	3.9
Official exchange rate, LD/USD	0.5	0.5	0.6	1.27	1.28	-
Consumer Price Index	2.6	-2.9	-8.8	-9.9	-2.1	-
Current account balance, Million USD	2,136	9,257	5,516	3,109	6,772	9,018
Current account balance, % GDP	7.0	27.0	19.4	16.3	28.8	32.3
Merchandise exports, % GDP	23.9	35.2	31.9	47.9	8.8	50.2
Inflation, % change	2.6	-2.9	-8.8	-9.8	2.8	2.9
Labour force, Million individuals	1.3	1.4	1.4	1.5	1.5	1.6

Source: IMF, 2005; Estimations.

Libyan labor force

As a result of the increase in wealth due to oil prices, the growing economic opportunities in Libya attracted large numbers of immigrants, especially from neighboring countries. Table 2 shows Libyan and non-Libyan work force statistics during 1970 – 2001.

Table 2. The Libyan and non-Libyan workforces development, in 1000 individuals

	70	75	80	83	88	90	94	96	97	99	2001	2004* Projected
Libyan	383	454	532	617	820	879	996	1057	1054	1203	1335	1543
Non-Libyan	50	223	280	562	142	139	156	166	160	179	123	56
Total	434	677	812	1180	963	1018	1149	1224	1214	1383	1458	1600

Source: Antipolis, 2002; * Source: IMF, 2005.

The quick decline of non-Libyan workforce from 1983 to 1988 is a result of a massive expulsion of immigrants, particularly those from Egypt and Tunisia² (Laroussi, 1996). The non-Libyan labor workforce is involved in almost all economic sectors; the largest participation, more than 66 % in 1998, is in the building and public works, followed by the agriculture sector with a bit more than 8 percent (Table 3). According to Anapolis (2002), because of the efforts in developing the skills of the national labor force, as part of the economic reforms that the government is undertaking, the non-Libyan labor force is expected to decline.

¹ The Libyan oil production shares about 8.7% of the Arab oil production, about 5.1% of OPEC, and 1.9 % of the world oil production in 1998. Its reserves of crude oil are about 29.5 Billion Barrels, or about 3.6% of OPEC reserve and 4.9% of the Arab oil reserves; the duration of current production is 56 years.

² According to Laroussi (1996), 25 000 Tunisian workers were expelled from Libya in 1985.

Table 3. Percentage of non-Libyan manpower in economic sectors

Sector	1970	1975	1980	1983	1988	1998
Agriculture	16	8	10.5	7.4	8.8	8.8
Oil	6.4	1.2	1.8	0.4	1.6	1.6
Mining	3.6	1.3	1.6	0.9	0.4	0.4
Industry	10.8	6.2	8.1	6.1	7.8	7.8
Building and public works	38.4	53.7	44.9	56.5	66.4	66.4
Education	6.6	6.3	8	4.5	2.2	2.2
Health	5.8	4.3	5.4	4	6.8	6.8

Source: Antipolis, 2002

With respect to social indicators (IMF, 2005), Libya had the highest Human Development Index in North Africa in 2002. Literacy and educational enrolment rates for adults aged over 15 was more than 80% well above that in neighboring countries. Libya has made substantial improvements in the past two decades, overtaking Tunisian adult literacy levels (of 71%), while cutting female youth illiteracy from 39% in 1980 to less than 7% in 2001. It also had the highest human life expectancy at birth, the highest physician number, and the lowest infant mortality, per thousand. Among 174 countries, Libya ranks 62nd according to the Human Development Index (HDI) (nationmaster.com, 2005)

The public sector has always been the main source of investment in Libya. To avoid external debts and dependence on the funds of international institutions, Libya has for long opted for self financing and based its investments on its oil revenues. Since the socialist government took over, private sector investments decreased from about 30 to 10 %, and State investments increased from about 70 to 90% by 1990 (Table 4) (Antipolis, 2002). During the era of UN sanctions, private investments have increased to reach about 25% by 1997.

Table 4. Public and private investment from 1970 to 1979, % of total

Period	Public, %	Private, %
70-72	69.1	30.9
73-75	79.1	20.9
78-80	87.2	12.8
81-85	91.7	8.3
86-90	90.2	9.8
91-97	75.4	24.6

Source: Antipolis, 2002

In its recent but slow process of economic reform, Libya had proceeded to privatize some public companies and allowed the creation of private banks. 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 (IMF, 2005). With the freezing in 1999 and the lifting of sanctions in 2003, and the plans to implement measures to reform and open economy, Libya is attracting more interest by foreign direct investment.

1.2 Libyan national economy and world economy

Libya belongs to the Arab League. However, Libya has been criticizing the effectiveness of this institution and has threatened to withdraw from it many times. After many years of the embargo and the subsequent lack of support from its Arab League counterparts, Libya turned towards other African countries. Nevertheless, Libya is among the 17 Arab countries that are signatories of The Greater Arab Free Trade Area (GAFTA) of the Arab League. The treaty aims at eliminating all the existing trade barriers among the Arab countries. Since the signature of the treaty, there has been an 80% reduction in customs rates applied in 1997 (The Arab Monetary Fund, 2004). Yet, the proportion

of all intra-GAFTA trade over the total trade of all the signatories has not exceeded 9 %, largely because of the administrative red tape and the elaborate procedures required to get through the clearance, transit, and transport of the goods, according to the Arab Monetary Fund (2004).

Libya has signed two regional agreements, the first in 1984 with Morocco constituting the Arabo-african union³, the second in 1987 with Morocco, Algeria, Tunisia and Mauritania instituting the Arab Maghreb Union⁴.

Compared to its Maghreb neighbors, Algeria, Morocco, and Tunisia, and to other oil exporting economies, such as Iran and Saudi Arabia, Libya has lower population and had higher per capita GDP and HDI in 2003 (Table 5). Its ranks in the world were: 80th GDP, 96th per capita GDP, and 15th industry share in GDP (nationmater.com, 2004). Its economy is similar to those of the small and rich oil exporting Arabian Peninsula countries, with very limited agricultural resources, an industrial base that is not well established, and very highly dependent on oil exports and revenues.

Table 5. Population, GDP per capita, and Human Development Index of Libya, Iran, and other Arab countries

	Libya	Iran	Algeria	Morocco	Tunisia	Saudi Arabia
Population, in millions USD	5.4	65.5	31.3	29.6	9.8	21.9
GDP per Capita, Constant 1995 USD	7 570	1 801	1 665	1 455	2 574	7 562
Human Development Index	0.794	0.732	0.704	0.620	0.745	0.768

Source: IMF, 2005

Libya has also applied for membership to the World Trade Organization (WTO) in Jun 2004. The WTO membership agreed on 27 July 2004 to start talks with Libya on its membership bid⁵, but the working groups in charge of examining the request have not been organized.

Since Libya started exporting oil, its over all trade balance has been positive. During the freezing of the sanctions in 1999 to 2003, its trade balance has nearly doubled; it increased from 4.09 to 7.46 US billion \$. In 2003 exports FOB were 14.66 and the imports FOB were 7.20 US billion USD. The hydrocarbons, which amounted to 14.18 billion USD, accounted for 96% of Libya's exports in 2003; those of non-hydrocarbons, which were 485 million USD, accounted for only 3% of all exports. Food and live animals accounted for 13.4% of the imports in the same year⁶ (IMF, 2005).

According to the same report, the EU absorbed 71.8% of all Libyan exports; the Arab countries imported 10.1%, Japan 8.7%, the USA 1.9% and other African countries only 0.4%⁷. Italy, Germany, Spain, France and Greece absorbed about 78% of the country's exports to the EU in 2001. Italy, Germany, the United Kingdom and France constituted the leading exporters of goods to Libya.

³ Without supporting Libya during US military action against Libya in 1986, disagreement entered into force.

⁴ This agreement is still in a quo status, mainly because of the Western Sahara problem between Morocco and Algeria.

⁵ Libyan authorities have formed a working group to undertake a thorough review of all laws, regulations, and policies that affect international trade and investment, and to prepare the Memorandum of the Foreign Trade Regime before the start of the negotiations for full membership in 2005.

⁶ This rate does not cease decreasing from one year to another, it was 20,1% in 2000, 17,1% in 2001 and 15% in 2002

⁷ The imports from the African countries never exceeded 1%.

Table 6. Libya's export principal destinations and import sources in 2003

Principal export destinations	Principal import sources
Italy 39.4%	Italy 27.2%
Spain 13.6%	Germany 10.3%
Germany 13.6%	Tunisia 7.7%
Turkey 6.6%	United Kingdom 6.9%
France 6.2%	South Korea 6.3%

Source: IMF, 2005

In 2003, the majority of Libya's overall export, 89%, was directed towards the EU, and only 4.6% went to the Arab countries and 0.2% to the other African countries; Italy and Germany constituted the main trading partners (table 6). During the mid- to late-1970s the United States was Libya's leading export market; US trade restrictions had reduced Libya's trade with the United States to zero by 1983.

Libyan Dinar exchange rate

The Libyan Dinar exchange rates per USD from 1999 to 2004 are shown in table 7 below. Before 2002, many rates were allowed. In 2002, Libya has unified the LD exchange rate to make an end to the many rates allowed⁸. In 2003, the official rate of exchange was devaluated by 51% and the real effective exchange rate has been stable since then. Each year, the Congress of the People approves the finance law that limits the rate of exchange to the other foreign currencies⁹.

Table 7. Libyan Dinar exchange rate per USD in 1999 - 2004

	1999	2000	2001	2002	2003	August 2004
Official exchange Rate; LD/USD	0.46	0.51	0.61	1.27	1.28	1.31

Source: IMF, 2005

1.3 Place of agriculture in the national economy

Data on Libya's agriculture are sparse and vary widely. For example, the reported amount of arable land (in some reports wrongly labeled as cultivated land) as a percentage of total area ranges from 1.2 (FAO, 2005)¹⁰ to 19% (Antipolis, 2002). Although some land is supposed to be reclaimed for agricultural use through the years by the State, arable land likely constitutes about 2% of total area. It is largely found in the northern Mediterranean strip, in the highlands south of the coastal belt, and in the few scattered oasis of the desert. The remaining portion is part of the Sahara on the southern area border of Libya, and accounts for more than 95 % of Libya. With very limited fresh water resources, rain fed agriculture represents more than 70% of total arable area. About one-third of the total arable land is kept fallow. The average farm size is about 11 hectares, of which many are fragmented into small plots; 45 % of the farms are less than 10 hectares. Libya's extremely dry climate and mostly sandy soil greatly limits the possibilities of agricultural endeavors.

Before oil discovery and exportation, agriculture employed about 70% of the labor force. Nowadays, it employs an average of 10% of the labor force (IMF, 2005). The agricultural labor force increased by 7.7 % between 1998 and 1999 to 226.53 thousand, 239 thousand in 2001, and decreased

⁸The Central Bank of Libya (2004) Research and statistic department Economic Bulletin, Volume 44, quarter 4

⁹ According to Article 32 of Banking Law No. (1) of 1373 P.D. (2005), the Central Bank, in coordination with the General People's Committee, shall set and shall be responsible for managing, the exchange rate of the Libyan Dinar against foreign currencies according to domestic and international financial and economic developments so as to serve the interests of the national economy

¹⁰ Statistical databases of FAO website

drastically in 2001 to 103 thousand¹¹. The difference in GDP and workforce percentages associated with agriculture indicates the inefficiency that characterizes agricultural productivity in Libya.

The principal agricultural products of Libya are: cereals, fruits (citrus), dates, tomatoes, potato and grapes (figure 3 in appendix). However, the country imports more than 90% of its food needs (detailed export, table 3a, and import, table 3b, quantities and values in 1000 USD in 1992 – 20002 are in tables 3a and 3b in appendix). The imbalance in food trade is increasing over time largely because of increasing population and low productivity (figure 2). Libya's total production, global needs, deficit and self-sufficiency in 1980 and 2002 are presented in table 8 below. Libya's milk production satisfied less than a third of its needs, while that of vegetables nearly covered all of the needs in 1980 (table 8). Whereas, cereals self sufficiency dropped from 77% in 1980 to 9.1% in 2002.

Table 8. Libya's total production, global needs, and deficit (1000 tons) and self-sufficiency (%) in 1980 and 2002.

Products	1980				2002*			
	Production	Needs	Deficit	% of self-sufficiency	Production	Needs	Deficit	% of self-sufficiency
Cereals	366.0	474.0	108.0	77	253.0	2761.0	2508.0	9.1
Legumes	10.0	16.0	6.0	62	-	-	-	-
Vegetables	346.5	352.5	14.0	98	699.0	746.0	47.0	93.6
Fruits	197.0	226.0	29.0	87	650.0	682.0	32.0	95.2
Meat	14.0	18.0	4.0	77	189.0	207.5	18,5	91.1
Milk	70.9	248.2	177.2	28	230.0	867.7	637,7	26.5

Source: El Azzabi, 1996; * for 2002 data are obtained from www.aoad.org

With respect to livestock, Libya had about 4.5 million sheep, 1.72 million goats, 162 000 camels, 140 000 cattle, and produced 230 Mt of milk and 55 Mt eggs in 2002 (AOAD, 2005).

The share of agriculture in the GDP rose from 4.50% in 1991 to 6.93% then to 8.54%, respectively in 1997 and 1998. Although agricultural GDP in the overall GDP has followed an upward trend, its share remained relatively small (Table 9) (AOAD, 2005; IMF, 2005).

Table 9. Agriculture GDP share in Libya's total GDP, %

Year	Agricultural GDP %
1986-1990 (Average)	7.4
1991	4.5
1992	6.5
1993	6.19
1994	7.25
1995	7.23
1996	6.64
1997	6.93
1998	8.54
1999	7.89
2000*	9.1
2001*	9.1
2002*	9

Source: AODA, 2000. * IMF, 2005

¹¹ This surprising decrease is due the massive departure of non-Libyan labor force?

2. Agriculture and food policy

2.1. General Setting

Since 1969, the Libyan government has been very involved in agricultural development. In 1970, it confiscated about 38,000 hectares of Italian colonial farms and distributed much of it in small lots to Libyans. In 1971, it declared all uncultivated land to be State property. In 1977, it instituted that the deciding factor in determining land ownership was the actual use of land. Inducements were also provided to absentee landlords to put their lands to productive use and high agricultural wage policies were instituted to encourage the rural-to-urban flow of labor (US Library of Congress, 2005). The main objectives for agricultural development in the 1980s were (AOAD, 1998):

1. To ensure self-sufficiency¹² in basic food crops, in particular: meats, vegetables and fruits while still giving much interest to the olive-tree and date palm.
2. To preserve and develop the natural resources
3. To ensure an equitable geographical distribution of the country's wealth by the achievement of projects in various zones of the country
4. To set up agricultural industries for the safeguarding and the improvement of the production
5. To pursue a marketing policy of agricultural products to improve farmer's incomes.
6. To ensure a rational management of water resources.

The 1981-85 Government development plan gave high priority to funding projects of water resources mobilization designed to bring water from the large desert oasis aquifers. In 1981, the National Agricultural Bank gave almost 15 million LD as agricultural credit to farmers. These policies resulted in some success: production levels rose slightly, many foreign workers were attracted to agriculture; nearly 20 percent of the labor force was in the agricultural sector by 1984 (US Library of Congress, uscountrystudies.com, 2005).

According to IMF (2005), the Libyan State invested large amounts of money in the agricultural sector, reaching an annual total of 230 million LD during the period between 1970 and 1991. Bovine breeding centers and vineyard growing farming units, especially in the coastal agricultural areas, were created. These units function with great flows with the aim to attain self-sufficiency in the production of eggs, milk, and dairy products.

However, because of the many small and fragmented farms, productivity remained low and scarce water was overused for irrigation. Water tables, especially in Libya's most productive coastal agricultural belt, alarmingly dropped down. To solve the problem, the Government opted for large-scale projects of water mobilization. The Great Man made River project, which was designed to bring water from the discovered desert oasis fossil reserves, was initiated in 1984.

In the 1990s, the objectives of agricultural development policies were (AOAD, 1998) :

- To increase agricultural production,
- To improve the capacity of natural and economic resources in term of management,
- To create farmers cooperatives,
- To set up an insurance and agricultural credit policy for granting to farmers appropriations credit for long, medium and short terms
- To transfer a certain number of agricultural projects and certain manufacturing units to farmers who work there
- To create agriculture and livestock associations for ensuring the availability of inputs and agriculture equipment.

¹² Self-sufficiency is designed as a priority among agricultural policies of the country.

Cultivated farming systems underwent a transformation in the 1990s with the following changes being noted (AOAD, 1998):

1. Reduction of cultivated area from 994 thousand ha, at the beginning of the 1990s, to reach in 1998, 620.18 thousand ha
2. Reduction in the area of cereals from 433.12 thousand ha at the beginning of 1990s to reach 180.330 thousand ha in 1998.
3. Reduction in the area allocated for fruits from 382.43 thousand ha to 317.72 thousand ha for the same period,
4. Fruits occupied first place followed by cereals, then, foodstuff, legumes and vegetables at the end of the 1990s, while at the beginning of the decade, cereals occupied 40% of cultivated area, followed by fruits then foodstuff, legumes and vegetables

2.2. Price and Income Support

As part of its agricultural liberalization process, the Libyan government allowed market mechanisms to determine agricultural prices. In addition, the removal of production and input support (such seeds and pesticides) has led to increased price levels. To minimize this negative impact of liberalization and to encourage the formation of farmers' market organizations, the government supported agricultural associations and cooperatives by providing inputs such as seeds, fertilizer, food stuffs... etc. Consequently, a great number of cooperatives were formed (AOAD, 1998).

2.3. Agricultural trade policy measures

According to the IMF report of 2005, Libya's trade policy is among the most restrictive in the world. In 2003, the simple tariff rates ranged from zero to 425 %, with an average of 21.8% and a substantial dispersion within product categories. In addition to import tariffs, the trade protection system includes a discriminatory consumption tax (10 to 50%) on goods that are consumed but not produced in Libya, while a production tax on local production ranges from 2 to 5%; and a regional and social solidarity tax of 15 percent of the import tariff. In addition, there are import bans on 31 items.

According to the same report, 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. Some state import monopolies were also eliminated. The authorities intend to keep the import bans only for religious, health and ecological reasons, which would involve less than ten products, and replace the remaining bans by tariffs. Further action is needed to improve Libya's trade regime. The consumption tax and regional and social solidarity tax should be integrated into the tariff rate structure, tariff protection should be limited to few items and reduced gradually overtime, and the number of tariff bands should be reduced from the current 20 to no more than five. Also, the remaining state import monopolies should be phased out and customs procedures should be simplified and made consistent with international standards.

IMF (2005) also noted that the main characteristic of Libyan foreign trade policy is its simplicity with ad valorem tariffs ranging between 5 to 30%. The products of basic character, such as food and medicine, are totally exonerated. Luxury products are, however, heavily taxed, 70 to 200%. Other internal taxes exist, such as the local collective tax of 5% and the national solidarity tax of 7.5%. For export, non-oil products are subjected to a symbolic tax (Oualalou, 1995).

Measures affecting imports

Since 1969, importation has generally been reserved to the public sector in Libya. Public companies, such as the National Oil Corporation, the National Supply Corporation (corn, flour, rice, tea, sugar, salt, vegetable oil, etc), and Drugs and Medical Equipments that include pharmaceutical products and hospital equipment, had the monopoly on the importation of products related to their activities (AOAD, 1998).

However to adapt to the embargo and UN sanctions, the State has allowed some liberal policy of importation by relegating importation licenses of certain products to some private companies and cooperatives since 1992. In 1999, the Popular Commission also promulgated the decision n°242 related to certain regulations regarding: classification of products in four categories, exchange rate for import of each category of products, the nomination of persons and institutions legally authorized to import each category of product, the distribution channel to be used of each products, as well as the customs duties imposed for each one of them.

For taxes on international trade, import duties are classified according to Brussels classification. Imports from Arab countries that contain a minimum domestic value added of 40% are exempt. Ad hoc exemptions to importers are widespread. Import duty rates range from zero for basic consumer goods and industrial inputs to 100% for leading consumer goods.

Measures affecting exports

The basic export policy in Libya is based on specialization and competitiveness, in both quantity and quality. Thus the Center of Development of Exports was created to organize the operations of importation and export (AOAD, 1998).

Duties are levied on a small number of agricultural products, textiles, precious metals, and medicines. Exports of public corporations are exempt. Export taxes are specific for agricultural products and range from 100 LD to 1500 LD per kilogram. Exports of manufactured products are subject to a 50 % tax.

2.4. Measures affecting input use

The Libyan government has been providing farmers inputs and farm equipment with long, medium and short credit (table 10). The Libyan authorities subsidize a number of imported products and ensure their distribution to the population through consumption associations. In addition, the services related to the agriculture research, credit and agricultural financing, extension services, education, veterinary services, and others, are largely subsidized. However, improvements in productivity remained low despite the strategic orientations of agricultural development insisting on the need for modernizing and improving agricultural technical level. Thus the production averages remain lower than those of other countries (IMF, 2005a).

Table 10. Loans distributed by the Agricultural Bank of Libya in 1999-2004, in millions of LD

	1999	2000	2001	2002	2003	August, 2004
Short-term *	14.7	24.0	19.2	6.4	51.9	9.8
Medium-term loans	10.5	11.1	11.1	40.1	115.6	10.4
Long- term loans	2	1.3	6.2	55.0	130.5	11.5
Total disbursed	27.2	36.4	36.5	101.5	298.0	31.7
Loans outstanding at end of period	96.2	113.0	131.2	235.6	298.0	313.0

Source: IMF, 2005a; *Includes special account emergency loans administered by the secretariat of agriculture

Fiscal policy

In appendix, table 3c presents a summary of the tax system as of October 2004 in Libya as reported by IMF in 2005

The law n° 5 in 2004 related to the encouragement and the attraction of internal and external investments insists, in some of its articles, on:

- Exemption of all the taxes, customs duties, and other similar taxes on all raw materials, materials and equipment, and spare parts necessary for the achievement of projects.

- Exemption of tax on the income during the first 5 years of the project and on the incomes drawn from the project can enjoy the same advantage if they are reinvested.
- Exemption of export taxes on exported products.

In the framework of the Arab free trade zone, the Arab member countries adopted a reduction of 10 % for the taxes and customs taxes.

2.5 Infrastructure policies

Research and development

The agricultural research in the country aims at the achievement and reinforcement of scientific studies and the preparation of necessary elements for natural resources development as well as the national agriculture. The National agriculture research system (NARS) of Libya in 1998 included three sets of scientific institutes (AOAD, 1998; El Azzabi, 1999) (picture table 1, appendix):

1. Those that are mainly involved in agriculture research: the Agricultural Research Center (ARC), the Animal Studies and Research Center (ASRC), and the Marine Biology Research Center (MBRC), affiliated to Secretariat of agriculture, Secretariat of Animal Wealth (SAW), and Secretariat of Marine Wealth (SMW), respectively. Together they account for about 50% of the potential research years (pRYs: equivalent full-time researchers) and 73% of the total financial resources of the NARS.
2. Those with limited involvement in agriculture research include seven faculties of agriculture and veterinary medicine, under the Secretariat of Education and Scientific Research (SESR). They account for about 38% of pRYs and only 9% of the total financial resources of the NARS.
3. Other "scientific institutions", affiliated to other secretariats, allocate some resources to agriculture research (around 12% of the pRYs and 18% of the total financial resources). Accordingly, the NARS is relatively highly fragmented among a large number of scientific institutions and secretariats. The National Authority for Scientific Research (NASR) is supposed to formulate and supervise the national research policy, but its actual role in agriculture research is rather limited, and currently no institution is actually responsible for coordinating the NARS.

The Agricultural Research Center, the most important national agriculture research institute¹³ has as main objectives:

- To set up a general plan for agricultural research
- To gather, classify and evaluate research, technical, and socio-economic studies
- To carry out studies related to the development of the natural resources and the resolution of problems of oases and arid regions
- To cooperate with the extension services for the diagnosis of agricultural problems, their resolution and for the implementation of the results of research
- To organize scientific activities (forums, seminars... etc.)

Extension and Education

The Libyan State offers technology transfer through its extension services to the farmers. These efforts allowed some increases in yields during the 1990s:

- Increase in the cereal yields from 732.7 kg/ha at the beginning of the decade to 1400 kg/ha in 1999

¹³ Over 179 agriculture research scientific staff, 133 belongs to ARC

- Increase in the potato yields from 8197 kg/ha to 25000 kg/ha for the same period
- Increase in vegetables outputs of 1123.7 kg/ha to 1669.2 kg/ha for the same period, and an
- Increase in fruit yields from 11341.7 kg/ha to 22401.3 kg/ha for the same period

However, compared to the average yield of neighboring countries, they still lower, with a very high cost of production.

Quality and sanitary control

Livestock production is becoming increasingly more intensive due primarily to genetic improvement and breeding programs of the local breeds, particularly cattle and goats, which are supported by artificial insemination and veterinary centers in various zones.

Structural policies

The policy aims at the classification of Libya's arable lands according to their natural and chemical characteristics and production potentials with the aim to identify lands that are of:

- High potential arable lands
- Low potential arable Lands with the aim to seek the possibilities of their improvement
- Lands that can be developed and cultivated

In addition, these land areas are classified as rain-fed, irrigated or durable farmlands. Thus, rainfall agriculture extends on an area of 767 thousand ha whereas irrigated agriculture occupies 350 000 ha (FAO, 1998).

According to the laws and regulations in Libya, three categories of land tenure exist:

- "General property" which consists of farms with huge investments, a great number of producers work according to a system of partnership, it concerns great agricultural projects,
- "Associative property" is a private property which corresponds to the associations managed by a restricted number of producers and is characterized by relatively small investments; it concerns family's associations, agricultural food associations etc.
- "Private property", is a personal farm.

Land reform and program of structural adjustment

According to IMF (2005), the objectives of the structural adjustment and economic reform programs related to the liberalization of the productive and commercial sectors, removal of the organizational constraints and price liberalization, that Libya is undertaking, aim:

- To transfer sectors that the State cannot manage effectively and efficiently to private sector,
- To encourage the private sector and the foreign investment
- To ensure an equitable and safe distribution of resources through free market mechanisms

In agricultural sector, these programs aim at the improvement of Libyan agriculture outputs through:

- Increase of self-sufficiency for all basic commodities
- The support of farmers via reduction of taxes and credit rate
- The freedom to farmers to sell their productions at market prices
- The supply of extension services to farmers particularly with regard to water use, seeds and plant protection
- The liberalization of farming systems

Agricultural Infrastructure

Libyan agricultural growth is attributed to the increase in irrigated area, since scarce surface water contributes less than 3% of the current water resources. To counterbalance this scarcity, the Government focused on the development of water resources during the last two decades, particularly the mobilization of the large non-renewable groundwater reserves in the great sedimentary basins of the Kufra, Murzuk, Safir and the Hamada southeast of Libya (please see map in page 2).

In 1984, the Government launched the Great Man-made River (GMR) project to transport fresh water from these vast underground aquifers to supply the major urban areas in the north for domestic and industrial use, and to irrigate 300,000-500,000 ha of farmland. However, agriculture is the major water consumer with about 350 000 to 400 000 irrigated hectares, representing about 87% of the demand in 1998 (FAO, 1998). Irrigated agriculture is expanding in the north as well as in the oases. Government expenditures reached 2.408 billion LD from 1999 to 2003 (table 11). The total cost of the project is about 25 billion US \$ and is regarded as the 1st massive program of water transfer in the World.

Table 11. The Great Man -made River Financial operations during 1999- 2004, in millions LD

Year	Revenues	Expenditures	Deficit (-) surplus (+)	Accumulated Deficit/Surplus
1999	380.9	210.2	170.7	- 904.5
2000	375.5	365.9	9.6	- 894.9
2001	447.7	350.5	97.2	- 797.7
2002	883.9	853.8	30.1	- 767.6
2003	699.3	627.7	71.6	- 696.0
2004 (projected)	637.0	708.0	- 71.0	- 767.0

Source: IMF (2005a)

It is worth mentioning here that in Libya's urban centers, where 85% of the population lives, inhabitants depend on municipal supply sources for their domestic water needs with average consumption per capita ranging from 150 to 300 l/capita/day. In rural areas, where the average per capita consumption ranges from 100 to 150 l/capita/day, people depend to a certain extent on private water supply sources, usually wells, rainwater reservoirs and springs. The industry consumes the least water of all sectors with an estimated use of about $145 \times 10^6 \text{m}^3/\text{yr}$ representing about 4% of the county's consumption.

Promotion and distribution

Given the important role of marketing in the development of agricultural production, Libya created the national Company of Agricultural Marketing, which is given the responsibility to market the productions between the producers and the consumers and supplies the centers of provisioning, the hospitals, etc. In the same way, associations and cooperatives of production supply their members on inputs and market their agricultural products.

2.6 Rural development policies

The GMR is definitely the project that is now changing Libyan agriculture radically. The project focuses mainly on water agricultural use and associated projects; the plans are to reach to irrigate 650 000 hectares. According to FAO (1998) the irrigated area was approximately to 450 000 ha in 1998 thereby increasing approximately 50% of the cultivated surfaces (table 12).

Table 12. Projected agricultural water use in Libya

Year	1995	2000	2005	2010	2015	2020	2025
Irrigated area, 1000 ha	350	400	450	500	550	600	650

Water demand, 10 ⁶ m ³	3 376	3 860	4 342	4 825	5 307	5 790	6 272
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Source: FAO, 1998

If this water is used in an efficient way, Libya could likely be a surplus producer. The administration in charge of the area of Syrte expect to distribute, according to the technical director of Gardabiya Company for Land Reclamation and Reform (GCLRR)¹⁴, 20 000 farms of 5 hectares, each one freely connected to the network of the GMR. In 2003, 10 000 connections were carried out. This operation was facing some problems of which, according to the same source, the difficulty to change mentalities and habits of the Libyan farmer, a long time State dependent.

2.7. Agro-environmental measures

These measures are not yet on the agenda for the Libyan agriculture. However, the GMR project worries several environment specialists, especially issues of the long-term consequences of the project. According to The Economist Intelligence Unit (2004), while the country is not at risk from sudden natural disasters, its environmental problems range from over-exploitation of groundwater resources, pollution, to poor waste management in major cities and the countryside.

2.8. Measures affecting the consumer

For many years, Libya strongly subsidized consumers. Subsidies remain on basic commodities such as flour, rice and sugar, which are imported by the National Supply Corporation (NASCO). Government subsidies on foodstuffs have fallen considerably in 2000 and 2001 since the suspension of sanctions¹⁵, and increased significantly after, particularly for flour and rice (table 13). Between 2002 and 2003 the cost of subsidy system has increased by 75% representing 3.5% of GDP (IMF, 2005a).

The Libyan subsidy program constitutes the root of a very dynamic informal trade in the Maghreb region. The products subsidized by Libya cross the whole Maghreb countries, initially in Tunisia where the population of the South (Benguerdane region) largely benefits from the products. In each big Tunisian city there exists a big market called 'Souk Libya or Libya's Market', in which is gathered a variety of Libyan products smuggled via Benguerdane frontier¹⁶. Algeria also profits through the Tunisian borders (Abidar, 2004).

Table 13. Libya's food subsidies in 1999-2004, in millions of Libyan Dinars

	1999	2000	2001	2002	2003	2004*
Wheat	54	23	12	99	-31	77
Flour	111	97	124	151	338	527
Sugar	-1	-5	11	22	39	44
Rice	23	15	8	52	46	104
Olive + other vegetable oils	32	12	-6	5	99	165
Tea	24	8	18	11	15	31
Coffee	-11	-2	0	0	0	0
Tomato paste	22	7	9	9	16	0
Dry yeast	0	-1	0	1	4	11
Dry legumes	-19	-1	0	0	0	0
Evaporated milk	0	-2	-7	3	56	147
Semolina	0	0	0	4	37	48

¹⁴ Journal Libération, 22-23 mars 2003 –France-

¹⁵ As import constraints on private businesses have been eased, privately owned shops now provide most foods and consumer goods, and subsidized products are now less important for Libyans than they were in the 1990s, when the economy was strictly regulated.

¹⁶ South Tunisian frontier with Libya

Miscellaneous	1	2	4	2	6	6
Total	237	152	172	357	625	1 160

Source: IMF, 2005a; * Projected; a minus sign indicates an operating surplus

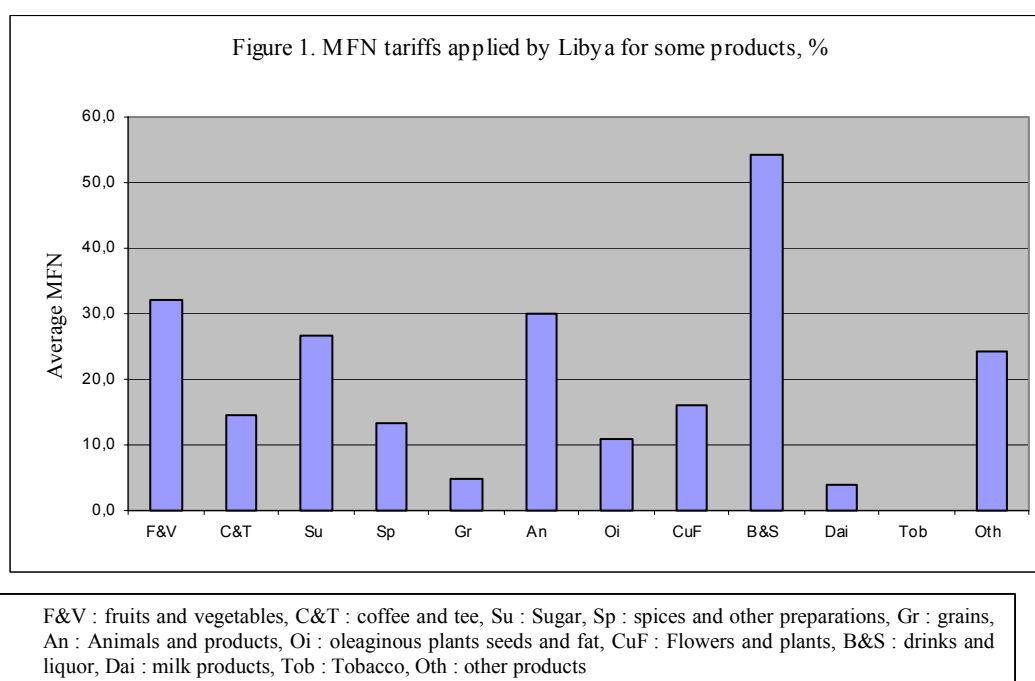
2.9. Social measures

Libya has undertaken a certain number of social dispositions. A program of land distribution to poor farmers was implemented with the objective to attenuate the rural migration and to improve the incomes. In addition, the Libyan citizens receive shares of the GDP. However, in spite of the increase in the national GDP, the personal share perceived decreased by 0.8 % in 1999 because of the increase in population. Indeed this share passed from 6525.43 dollars in 1998 to 6473.80 dollars in 1999. It should be noted that this share increased in the middle of the 1990s to reach 8600 dollars then decreased at the end of the decade.

The share received by agricultural GDP is small. It was 338.5 dollars in 1990 and 507 dollars in 1997, which means an increase by 33 %. Its maximum was reached in 1995 with 626 dollars.

3. Assessing “rate of assistance” to agriculture

Libyan MFN applied tariffs are relatively low, compared to other Arab countries. The simple average MFN of all products during 2003 ranged from 17% to 23% for agricultural products. Beverage and spirit bear the highest tariffs (54%), then fruit/vegetables and animals with respectively 32 and 29% (figure 1).



Tariffs applied against the world depend on the products and countries. As show in table 14, for a single product, tariffs are 50% lower for Arab countries than for the rest of the World. For Morocco tariffs are all zero as specified within the framework of a bilateral agreement. This reduction of tariffs for Arab countries is along with the Libyan concept of a single Arab state. Included in Libya’s tax system is the exemption of all products that contain a minimum domestic value added of 40% imported from Arab countries.

According to the IMF (2005), despite the recent simplification in Libya's trade regime, effective trade protection remains high.

Table 14. Tariffs applied by Libya against certain countries, % of product value

	Cereals				Milk products			Meat			Other		
	Barley	Corn	Rice	Wheat	Cheese	Butter	Powder	Fresh Chicken	Frozen beef meat	Fresh beef meat	Tobacco	Sugar	Cotton seeds
France	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
US	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Australia	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
New Zealand	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Argentina	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Brazil	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Algeria	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Cyprus	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Egypt	0	0	7.39	7,5	2.5	7.42	0	25	0	0	0	7.49	12.5
Israel	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Jordan	0	0	7.39	7,5	2.5	7.42	0	25	0	0	0	7.49	12.5
Lebanon	0	0	7.39	7,5	2.5	7.42	0	25	0	0	0	7.49	12.5
Malta	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25
Morocco	0	0		0	0	0	0	0	0	0	0	0	0
Syria	0	0	7.39	7,5	2.5	7.42	0	25	0	0	0	7.49	12.5
Tunisia	0	0		7,5	2.5	7.42	0	25	0	0	0	7.49	12.5
Turkey	0	0	14.79	15	5	14.85	0	50	0	0	0	14.99	25

Source: MACMAPS, 2004

4. Concluding remarks and outlook

Libya, a major oil producing country, is for the most part a dry and an arid country. In spite of the State's keen interest and massive investments in agriculture development, 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 specter and quantities of agricultural produce that are imported by the country every year. The main factors that hinder agriculture in Libya are very scarce fresh water resources and limited arable land with mostly sandy soils low in fertility.

The two major constraints that distinguish Libya's fresh water resources are: on one hand, the very low and erratic rainfall, and, on the other, the significantly large quantities of water, which are available in the aquifers of the south and southeast country's desert, but are nonrenewable fossil water.

Libya's agricultural trade balance has been largely negative, its trade performance has also been very low, and both will likely continue to be as such for times to come. The country only exports about 0.3% of its agricultural produce, mainly ruminant skin and hair products, and imports the major part of its food needs, especially those of wheat. Fruit imports are relatively low and amount to make up about 9%, while vegetable imports, a little higher, are to fill a deficit of about 25% of its domestic utilization. Olive oil imports correspond to 44% of Libya's domestic consumption of the product.

Currently, the total water withdrawal is more than 711 % of the actual total renewable water resources in the country, indicating that one day in the future, water would be even more of a critical resource than what it represents for now, especially with the increasing population in the country. The substantial investments in the Great Manmade River Project (GMMRP) to transport water over more than 3 000 Km from those aquifers will help alleviate the severe water shortage in the northern region,

satisfy the increasing water needs for domestic and industrial purposes, and increase irrigated land, but only while the fossil water lasts in its basins.

In a study conducted by Abufayed et al. in 2003, Libyan scholars of an engineering school in the country, it was found that the cost of long distance water transfer can be more than 0.83 US Dollars per m³, and can go up even a lot higher, to 2.35 USD/m³, when sustainability factors are included. While, these values were competitive with those of seawater desalination twenty years ago, the situation has reversed in favor of seawater desalination whose cost dropped from 5.5 USD/m³ back then to less than 0.55 USD/m³ nowadays. Therefore, large scale water desalination coupled with rational use of nonrenewable fossil water may be a more favorable route for sustainability of water resources and for irrigated agricultural development.

In brief, agriculture in Libya is confronting major obstacles by the prevailing natural conditions of aridity and scarcity of arable land, but in which other structural and demographic factors as well as the lack of well prepared and informed technicians and farmers further hinder the performance of the sector. Government efforts in agriculture development have been characterized by sizable investments and subsidies. During the last two decades, Libya's policies have made progress toward the development of its agriculture. However, it seems that those 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.

Libya's total population has nearly doubled since 1980's and it will continue to increase (2% annual growth) therefore there will be increasing demand for food and water. The oil sector with favorable world markets has been overtaking the shares of most other sectors of Libya's economy. The foreseen increasing revenues of oil and the available large amounts of fossil water 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. However, this security will surely be tightening up gradually as those non renewable resources will be inevitably shrinking.

While its water reserves last, Libyan agriculture will be shaped by the manner with which the water from the GMMRP project is managed. The optimal management of this water can help transform Libya from a net importing country to an exporting one. The cultivation of 450 000 ha under irrigation, if efficient techniques are applied, can produce output that can meet the needs of the Libyan population. Many of Libya's intensive agricultural projects developed by the State which depend on the fossil water are using advanced irrigation technology to grow the crops. However, the depletion of the fossil water reserves, on which these projects depend, means that they have little long-term viability. Therefore agricultural water policy should aim at better water retention structures and irrigation methods that will permit sustainable renewable and fossil water use. Crops that are adaptable to Libya's environment but with less water requirements and resistant to water stress should be encouraged, efficient drip irrigation techniques should be promoted, and off soil agricultural production technologies should be introduced and expanded. Also policy should aim, on one hand, at the improvement of the low agricultural yields, and this by proper means of better farmers' information and education, and on the other hand, at the modification of farm structure that is dominated by small sized holdings, by promoting their organization into more groups.

The Libyan authorities recognize that the GMMRP is not a full solution to the country's water needs; the government has started a program to build 11 new desalination plants during 2003. The political situation between Libya and the West has changed in favor of long and cordial relation. Since the freezing of the UN sanctions in 1999, Libya has been gradually implementing measures to reform and open its economy. Some progress was especially made, and it seems that it will continue, on structural reforms in 2003 and 2004.

However, the country will still be largely dependent on food imports until it fully completes its GMMRP. When Libya's application to the WTO will be approved, the process of economic openness and liberalization will be hastened and thereby help augment the potential of its economy and its agriculture.

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Appendix

Table 1a. Libya's GDP in millions Libyan Dinar, 1960 –2002

Year	GDP, in Millions Libyan Dinar	Percent Change
2002	24309.000	41.4%
2001	17195.999	-2.0%
2000	17550.000	24.1%
1999	14139.000	11.0%
1998	12742.000	-9.9%
1997	14149.000	16.2%
1996	12180.000	14.0%
1995	10680.001	7.2%
1994	9967.000	6.8%
1993	9332.000	-2.2%
1992	9541.000	6.2%
1991	8981.000	9.7%
1990	8185.000	8.6%
1989	7537.000	11.0%
1988	6791.000	8.6%
1987	6253.000	-12.3%
1986	7131.500	-13.3%
1985	8226.500	-1.6%
1984	8363.900	-6.4%
1983	8931.900	-4.7%
1982	9372.800	-0.3%
1981	9401.100	-13.6%
1980	10881.599	38.7%
1979	7846.000	37.9%
1978	5688.000	-1.3%
1977	5763.000	17.4%
1976	4907.000	29.8%
1975	3780.000	-2.7%
1974	3883.000	72.9%
1973	2246.000	24.9%
1972	1798.000	10.5%
1971	1627.000	14.1%
1970	1426.000	5.0%
1969	1358.000	13.7%
1968	1194.000	41.3%
1967	845.000	17.9%
1966	717.000	28.0%
1965	560.000	34.6%
1964	416.000	50.2%
1963	277.000	44.3%
1962	192.000	39.1%
1961	138.000	10.4%
1960	125.000	

Source: data compiled by econstats.com from IMF

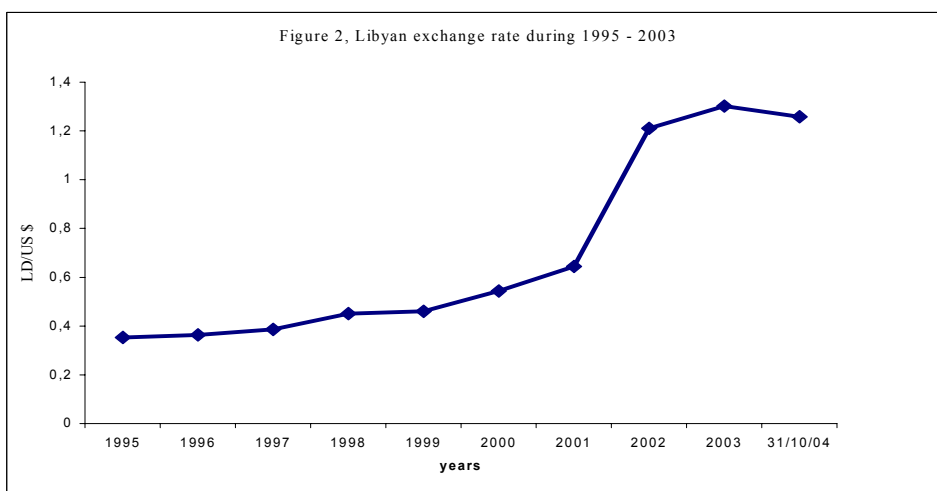


Figure 2, Libyan exchange rate, 1995 – 2003

Figure 3. Main agriculture productions distribution of Libya, average of 1990-2002

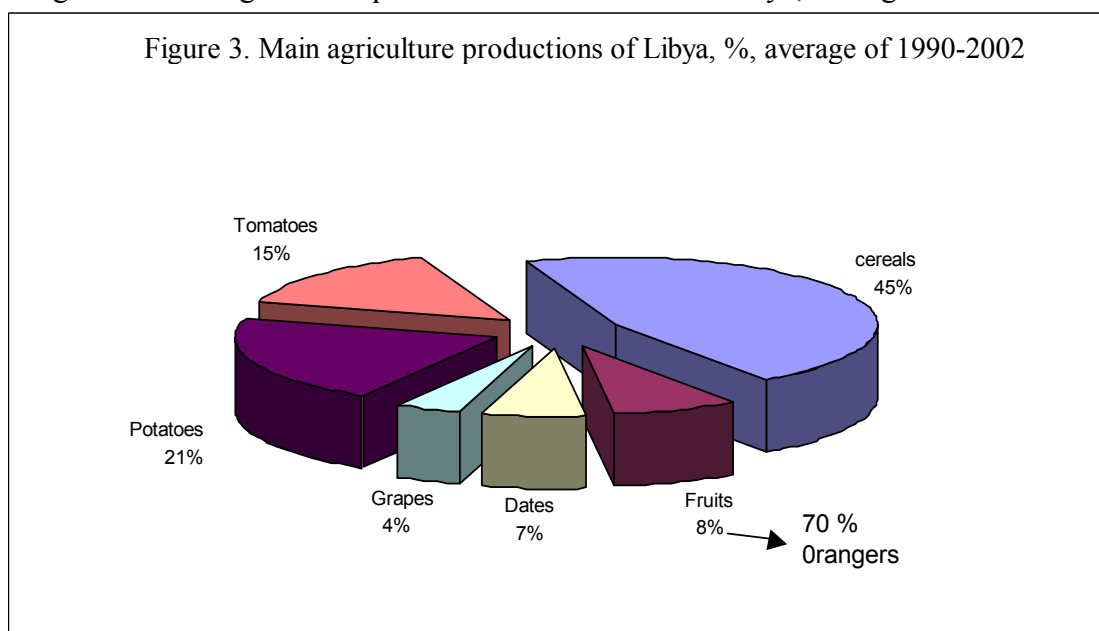


Table 3a. Libya's exports of food products in metric tons/HD and value in 1000 USD, 1992 - 2002

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total Fresh, Preserved, Prepared and Dried Fruits, Metric ton/HD	0	0	0	0	0	0	0	0	0	40	720
Date, Metric ton/HD	0	0	0	0	0	0	0	0	0	20	20
Total Fresh, Preserved, Prepared and Dried Fruits, in 1000 USD	0	0	0	0	0	0	0	0	0	30	480
Date, in 1000 USD	0	0	0	0	0	0	0	0	0	30	30

Table 3b. Libya's imports of agricultural products and foods, 1992 - 20002

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Quantity in Metric tons/HD										
Cereals and products											
Total Cereals and flour	2032930	2207370	1283980	1766170	1040070	2099590	2745030	852140	2718520	3004650	2508540
Total Cereals and flour	163860	119810	156190	110340	207330	279000	268820	244010	193030	217650	196750
Wheat	500000	538270	606630	557650	433040	594170	764710	491690	427330	266550	712660
Wheat flour	480000	492670	334570	337690	255970	366660	1259240	220820	1000430	901860	829360
Barley	600000	789670	687980	762750	70540	620870	215000	90470	37820	141490	146720
Maize	50000	35710	25510	18220	26480	11820	5370	5370	276660	147630	402410
Sorghum	0	0	0	0	0	0	0	0	0	0	0
Rice	206000	141130	106200	89860	85150	272780	202480	72630	164530	124700	92370
Pulses											
Lentils	0	0	0	0	2830	150	70	40	190	870	960
Chickpeas	0	0	0	0	14860	120	4980	2280	2420	2460	3340
Board Beans	0	0	0	0	400	1140	30	230	2280	700	1370
Total Pulses	10000	9330	2630	133640	74950	8460	10980	2880	6560	4740	6940
Oil seeds											
Shelled Groundnuts	0	0	200	120	0	10	130	450	20	90	50
Sesame	100	40	300	300	60	200	30	130	240	90	220

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Soya Beans	1100	510	490	490	6660	26360	51660	54860	26270	100780	117230
Total Oil Seeds	1200	1310	990	910	6720	26850	52920	55440	26540	101010	117640
Vegetable oil											
Soya Bean Oil	1200	2030	2740	2020	330	40	900	1340	470	1250	750
Cottonseed Oil	4000	0	4000	2670	6110	5040	5350	0	0	0	0
Olive Oil	1000	660	0	730	10	10	10	9960	40	20	70
Sesame Oil	0	0	0	0	0	0	0	0	250	30	30
Corn Oil	48000	59700	69700	103410	87050	99110	133610	96630	187650	106850	74610
Linseed Oil	0	0	0	0	40	100	160	570	50	30	250
Margarine	10000	14470	14630	14790	2770	2600	6340	3860	1390	1390	180
Total Vegetable Oils	150810	114710	75850	111460	97330	108360	143830	117980	188550	109580	76360
Vegetables											
Fresh Tomatoes	19000	23330	25590	23950	21290	23260	23410	12870	220	20	20
Onions	20000	17340	13390	18610	9260	16490	17340	20350	10	160	310
Processed and Preserved Vegetable	3000	2580	2160	3210	440	2130	2130	1360	180	220	450
Total Fresh, Processed and Preserved Vegetables	118000	130660	137210	156160	151690	160090	197130	91270	69770	58850	47040
Fruits											
Orange and Mandarin	0	0	0	0	0	0	0	20	20	120	90
Lemon	0	0	0	0	40	30	30	30	70	60	110
Bananas	10000	6260	5820	8400	9080	10440	11280	12120	11480	26220	22130
Apple	0	0	0	0	0	0	0	0	4720	4590	7690
Fresh Grape	5770	6800	8250	11090	9090	9280	9210	12920	30	150	100
Dried and Fresh Date	3600	3290	3230	3620	5420	4450	4680	4420	50	310	50
Fresh, Preserved or Canned Olive	0	0	0	0	110	30	30	50	670	1340	4270
Total Fruits	18600	14890	15100	17200	56030	33830	37050	16630	17380	33550	33340
Livestock & animal products											

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Live Cattle and Buffalo	55000	27720	47120	114000	140000	108030	177900	223480	13000	590	1170
Live Sheep and Goat	180000	145110	126180	266000	226000	132450	175680	123460	4020	4020	9340
Total red meat Fresh, preserved and preparations	25130	17820	14500	46360	18560	22950	35480	10850	2930	10780	17330
Beef, Fresh, Preserved and Preparations	25000	17730	14500	21420	9440	10250	15000	10190	1410	880	2350
Sheep and Goats Meat (Fresh, Chilled or Frozen)	130	90	0	0	340	260	260	300	1490	8300	14930
Other Meat (Fresh, Chilled or Frozen)	0	0	0	0	410	350	400	20	20	0	10
Total meat dried, salted, canned and meat preparations	24600	21530	17790	24940	8370	12090	16960	60	10	10	40
Live Poultry	0	0	0	0	30	0	0	0	0	1470	0
Fresh Milk	1200	800	870	930	1200	3120	2010	3120	950	1920	2950
Chicks	0	0	0	0	0	0	0	240	0	1430	20
Poultry meat (Fresh, Chilled or Frozen)	4500	5230	5070	6020	180	270	3090	270	650	530	1070
Milk Product (Liquid Form Equivalent)	284800	281250	338600	368430	461030	471870	425920	525070	280240	548120	637770
Cream	1200	800	870	560	850	1460	1210	1280	440	210	390
Dried Milk and Cream	10000	10670	10400	10480	16900	12290	12430	19620	150	240	220
Evaporated or Condensed Milk	1500	670	750	830	1190	1230	1320	180	23100	14850	14850
Cheese	14000	17180	16330	19140	25310	30550	26750	30340	7800	7810	13660
Butter and Ghee	4800	3670	3520	3790	6680	6710	5830	6630	1170	1610	2180
Total Egg	500	400	1640	390	3110	500	1340	0	790	100	2520
Table-Egg	500	400	1640	390	290	500	470	430	790	10	180
Value in 1000 USD											
Cereals and products											
Wheat flour	123000	125420	167890	173020	160130	232250	260410	82690	59040	40430	88960
Barley	78000	104000	103440	114680	10060	115330	63650	14960	6070	22970	12090
Wheat	67000	62530	65850	85150	78270	120620	414250	30500	222600	183680	153780
Maize	9300	7030	5210	3640	5260	2630	1480	1480	97690	33640	41980

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sorghum	0	0	0	0	0	0	0	0	0	0	0
Rice	86000	56010	41140	39870	39630	135880	90640	17610	53550	30520	27060
Total Cereals and flour	364270	354990	274870	416360	293350	607280	530250	147250	556990	312720	325330
Pulses											
Lentils	0	0	0	0	2390	130	150	20	130	470	260
Chickpeas	0	0	0	0	18290	140	9680	1830	2770	1890	990
Board Beans	0	0	0	0	420	1380	60	170	2270	520	380
Total Pulses	7200	7310	2330	42840	31930	3600	22350	2340	7530	3570	2270
Oil seeds											
Shelled Groundnuts	0	0	400	240	0	40	680	990	30	140	40
Sesame	190	70	510	510	260	1270	670	410	970	270	360
Soya Beans	400	220	170	170	4260	15810	7570	23560	23850	45400	22630
Total Oil Seeds	590	350	1080	990	4550	17260	78750	24970	24890	45920	23260
Vegetable Oils											
Soya Bean Oil	1950	1840	2320	1710	500	80	1650	1290	470	1240	370
Cottonseed Oil	4200	0	4200	2800	6410	5290	5610	0	0	0	0
Olive Oil	2000	1360	0	1060	40	60	30	11840	100	20	40
Sesame Oil	0	0	0	0	0	0	0	0	390	40	20
Corn Oil	58000	75680	89020	109110	93650	122480	133780	73650	139190	75570	39870
Linseed Oil	0	550	520	580	660	580	40	110	90	40	140
Margarine	5900	4310	4970	2420	5120	5890	6460	7030	2330	1810	120
Total Vegetable Oils	161420	125270	84370	117680	106390	134380	245120	99860	140300	79870	40700
Fresh, Processed and Preserved Vegetables											
Fresh Tomatoes	10	140	170	69610	49850	37410	52290	10	260	20	10
Onions	80	20	620	630	220	180	390	390	10	120	100
Processed and Preserved Vegetable	0	0	0	0	0	0	0	0	410	290	1460

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total Fresh, Processed and Preserved Vegetables	30090	55990	29750	70240	50300	37590	52680	64490	58820	44100	33430
Fruits											
Orange and Mandarin	0	0	0	0	0	0	0	0	40	120	60
Lemon	0	0	0	0	0	10	30	10	60	30	40
Bananas	3500	2370	1080	2540	15450	2320	7500	7940	17630	24850	12770
Apple	2900	5070	20	80	19530	6410	50330	5960	6310	4550	5170
Fresh Grape	0	0	0	0	0	0	0	0	60	140	60
Dried and Fresh Date	550	430	1040	250	630	40	10	40	170	410	40
Fresh, Preserved or Canned Olive	1900	3430	4810	3690	2110	3240	20010	2240	1730	2480	3910
Total Fruits	9350	11300	7370	15180	37930	9900	82580	18660	26530	32950	22040
Livestock and animal products											
Live Cattle and Buffalo	40000	29670	11750	61700	170860	170860	14190	6690	9730	300	130
Live Sheep and Goat	64000	79000	65480	44930	44930	44500	32180	24500	1390	1390	1540
Total Red Meat (Fresh, Preserved and Meat Preparation)	5520	4530	4440	4110	9120	15270	14520	6690	7920	25010	21550
Beef (Fresh, Preserved and Meat Preparations)	5400	4450	4390	3500	6420	8300	10660	3380	4310	1850	2990
Sheep and Goats Meat (Fresh, Chilled or Frozen)	120	80	50	10	1680	6480	3530	2500	3550	20130	18530
Other Meat (Fresh, Chilled or Frozen)	160	200	240	200	550	90	320	0	40	0	10
Total Meat (Dried, Salted, Canned and Meat preparations)	360	210	390	400	470	400	0	810	30	10	20
Live Poultry	0	0	0	0	0	0	590	550	0	12480	160
Chicks	0	0	0	0	0	0	0	0	0	13480	3660
Poultry meat (Fresh, Chilled or Frozen)	600	370	4360	5500	2090	4570	5200	810	1470	660	1040
Milk Product (Liquid Form Equivalent)	82700	88000	118540	92390	90910	75530	151130	102740	73640	83770	97470
Fresh Milk	1500	830	520	910	10	210	1240	20	2270	3400	3010

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Cream	1500	830	520	370	340	60	60	30	680	240	220
Dried Milk and Cream	33500	29670	29350	31650	33940	220	67340	37920	200	250	150
Evaporated or Condensed Milk	25000	26960	38380	23110	24730	23790	22030	20270	25310	14020	14020
Butter and Ghee	9700	8370	17120	13130	7360	4100	7580	8420	2130	2170	1390
Cheese	13000	22170	32650	22680	24530	26610	74900	38540	22760	16200	13140
Total Egg	6800	7170	6320	6170	20	730	0	0	30	40	6510
Table-Egg	6800	7170	6320	6170	20	50	0	0	30	40	510

Figure 4. Agriculture trade balance of Libya during 1961 –2001, in 1000 USD

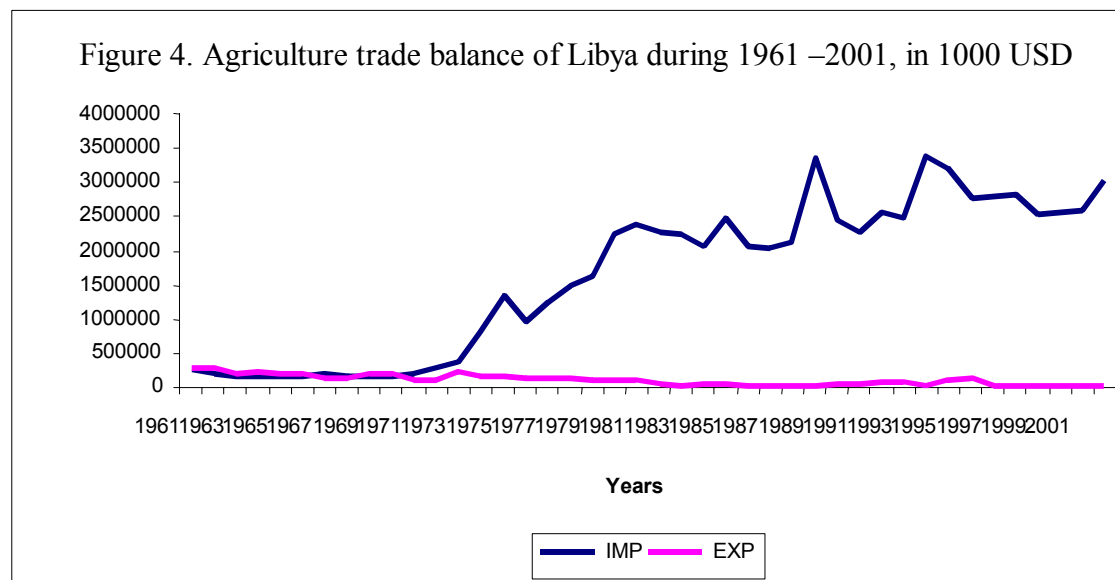


Table 1 - The National Agricultural Research System (1998)

Italics: Approximate data. °: Rounded numbers.: Data not available. *: See footnotes.

NARS Institutions				Scientific & Technical Graduate Staff (Units)					Potential Research Years *			Total Budget*	AR Expend./Res.*
No.	Name - Acronym Head Office - Year Established	Mandates AR Fields	Gover. Minist.	Nationals Total - (PhD, MS)		Exp.	Total	Nat.	Ext	Total	(US\$ million)	(US\$ million)	
a	b	c	d	e	f	g	h	i	j	k	l	m	
1.1	Agricultural Research Center, Tripoli	ARC - 1971	SA	133*	10, 34	0	133	112			112	8.3	7.9
2.1	Animal Studies and Research Center, Tripoli	ASRC - 1996	SAW	30*	5, 8	0	30	13			13	1.2	1°
2.2	Marine Biology Research Center, Tripoli	MBRC - 1969	SMW	16*	2, 4	0	16	6			6	0.8	0.7
1/2	Total AR Institutes			179	17, 46	0	179	131			131	10.3	9.6
3.1	Fac. of Ag., Un. El-Fateh, Tripoli	1966	SESR	...	134	12	...	66	35	101	11.6	1.2	
3.2	Fac. of Ag., Un. Omar El Muhktar, El Beida	1975		...	52	34	...						
3.3	Fac. of Ag., Un. Atahadi, Sirte	1992		...	2	5	...						
3.4	Fac. of Ag., Un. Sebha, Sebha	1978		...	8	14	...						
3.5	Fac. of Vet. Medicine, Un. El-Fateh, Tripoli	1975		...	21	30	...						
3.6	Fac. of Vet. Med., Un. Omar El Muh., El Beida	1988		...	2	26	...						
3.7	Fac. of Vet. Med. & Rainfed Ag., Un.*, Zentan	1997		...	4	20	...						
3	Total Agricultural Sciences Faculties			263*	167, 56	141	404	66	35	101	11.6	1.2	
4.1	Ag. Section, Nuclear Research Center, Tajoura*	NCR - 1976	STH	17	3, 5		17	17		17	1.2	1.2	
4.2	Depart. for Remote Sensing, LCRSS, Benghazi*	LCRSS - 1990	STH	15	1, 4		15	8		8	0.6	0.6	
4.3	Ag. Section, Econ. Studies Res. Center, Tripoli*	ESRC - 1985	SESR	7	1, 2		7	7		7	0.5	0.5	
4	Total Other Scientific Institutions			39	5, 11	0	39	32		32	2.3	2.3	
5	Total NARS (approximate)			481	189, 113	141	622	229	35	264	24.2	13.1	
Exchange Rate: 1 Libyan dinar = US\$ 2.77 (1998 average official rate)				Actual Research Years (aRYs) (Estimate) →				160					

SA: Secretariat of Agriculture. SAW: Sec. of Animal Wealth. SMW: Sec. of Marine Wealth. SESR: Sec. of Education and Scientific Research. SM: Sec. of Municipalities. STH: Sec. of Training and Habilitation. NASR: National Authority for Scientific Research.

c: Mandates: AR (. %): Approximate average % of human resources devoted to ag. research (AR); R: Research; AHE: Ag. higher education; AD: Ag. development/services (for AR and AHE institutes: seed production, soil and water analysis, extension, studies, etc.). i, j, k Potential research year (pRY) = equivalent full-time researcher; for the FASs, the pRYs have been estimated by multiplying the number of academic staff by 0.25 m. For the AR institutes, AR financial resources were roughly estimated through the following formula: Total budget × [ω + 0.5(100% - ω)], where ω is the % of time devoted to AR by the graduate staff.

* Notes: l, m: All financial resources are national. 1.1: ARC: including 9 graduate staff members on study leave (5 MS and 4 BS). 2.1: ASRC: including 8 graduate staff members on study leave (4 MS and 4 BS). 2.2: MBRC: including 8 researchers on study leave. 3/e: The FASs employ 263 national academic staff members, including 223 PhD and MS holders and around 40 BS holders who are considered as technicians. 4.1 to 4.3: Only the graduate staff and financial resources allocated to AR are mentioned.

National/total AR expenditures (NE/TE): 0.67% of the Agricultural Gross Domestic Product (AGDP: US\$ 2 billion in 1996/97).

Source : El Azzabi, 1999.

Table 3c. Summary of the Tax System in Libya, October 2004

Tax	Nature of Tax	Exemptions and Deductions	Rates
7. TAX ON WAGES AND SALARIES	This tax applies to income from labor and any income from any service or function, whether of a permanent or temporary nature. The tax is deducted at source by the employer.	Personal allowances: (a) single person LD 1,200 (b) married person with no dependent children LD 1,800 (c) married person, widowed, or divorced, with dependent children LD 2,400. In addition: (a) contributions to social security, or other approved schemes; (b) amounts received as reimbursement for expenses incurred in performing duties; (c) deductions or fines; (d) monetary allowances for leave accumulated at end of service. Others: a) depreciation on all assets used to generate income; (b) bad debt; (c) sums paid under the social security system, or other approved schemes not to exceed 10 percent of the total collected; (d) taxes and fees paid in connection with the activity taxed; (e) contributions to government recognized non profit charitable entities, not in excess of 2 percent of net income.	Income brackets (LD) Rates (In percent) First 4,800 8% Next 4,800 10% Additional Income 15%
8. JIHAD TAX	An additional tax levied on all taxable income.	None.	Income brackets (LD) Rates (In percent) 0-50 per month 1% 50-100 per month 2% Over 100 3%
B. CORPORATION			
1. TAX ON COMPANIES	Companies and branches of foreign companies in Libya are subject to this tax. Petroleum companies are subject to special provisions concerning royalties, income tax, and production sharing.	Establishment expenses as defined by the Law.	Income brackets (LD) Rates (In percent) First 200,000 15% Next 300,000 20% Next 500,000 30% Next 500,000 35% Additional Income 40%
		on the life of the taxpayer, his wife, or dependents up to a maximum of LD 600 annually; (b) premiums on general insurance up to LD 420 annually.	Industrial Profits: First 10,000 15% Next 20,000 20% Next 30,000 25% Additional Income 30%
3. TAX ON INCOME FROM ABROAD	Income from abroad of Libyan and foreign residents in the country are subject to this tax.	Salaries, wages, and similar income received for work performed abroad are exempt.	A flat rate of 20 percent.
4. TAX ON INTEREST INCOME	Interest resulting from deposits with banks is subject to this tax.	Savings accounts are exempt.	A flat rate of 5 percent

2. TAXES ON GOODS AND SERVICES			
Tax	Nature of Tax	Exemptions and Deductions	Rates
1. GENERAL SALES TAX	Does not exist.	None.	None.
2. EXCISES	The excise taxes apply to a number of commodities whether they are domestically-produced or imported. Taxes on petroleum products are specific and are the same on both imports and domestic production. Taxes on all other commodities are ad valorem and are lower on domestic production as a protective measure.	None.	For petroleum products, the taxes are in the range of 7–32 dirhams per liter. For other commodities, the rates are in the range of 2–5 percent on domestic production (Production Tax) and 10–50 percent on imports (Consumption Tax).
3. TAXES ON INTERNATIONAL TRADE			
1. IMPORT DUTIES	Duties are levied on imports classified according to Brussels classification.	Imports from Arab countries that contain a minimum domestic value added of 40 percent are exempt. Ad hoc exemptions to importers are widespread.	Import duty rates range from zero for basic consumer goods and industrial inputs to 100 percent for leading consumer goods.
2. EXPORT TAXES	Duties are levied on a small number of agricultural products, textiles, precious metals, and medicines.	Exports of public corporations are exempt.	Export taxes are specific for agricultural products and range from LD 100 to LD 1,500 per kilo. Exports of manufactured products are subject to a 50 percent tax.
4. SOCIAL SECURITY			
1. SOCIAL SECURITY	Applies to wages and salaries.	None.	Employees contribute 3.75 percent and employers 11.25 percent.

5. OTHER TAXES													
Tax	Nature of Tax	Exemptions and Deductions	Rates										
1. STAMP DUTIES	The duty is levied on a range of instruments and transactions including bills of exchange, leases, contracts, mortgages, and licenses.	<p>Documents and actions drawn up or concluded by public agencies.</p> <p>Documents and actions drawn up or concluded by government-recognized organizations for professional, social, cultural, charitable, or athletic activities; or to serve the public interest.</p> <p>Documents and actions drawn up or concluded by foreign diplomatic or consular entities, subject to reciprocity.</p> <p>Documents and actions drawn up or concluded by certain international organizations.</p> <p>Documents related to Pilgrimage to Mecca.</p> <p>Documents related to studies in various educational institutions.</p> <p>Documents or actions drawn up or concluded by persons drawing basic pensions or wages.</p> <p>Documents submitted by persons seeking employment.</p> <p>Other exemptions specific to each stamp duty also apply.</p>	The duty is specific to each action as stipulated by its Law.										
2. THE GREAT MAN-MADE RIVER	This is an extra-budgetary tax levied on sales of gasoline, diesel, cigarettes, and airline tickets.	None.	<table> <thead> <tr> <th>Item</th> <th>Rates</th> </tr> </thead> <tbody> <tr> <td>Gasoline (per liter).....</td> <td>LD 0.020</td> </tr> <tr> <td>Diesel (per liter).....</td> <td>LD 0.005</td> </tr> <tr> <td>Cigarettes (per cigarette)</td> <td>LD 0.010</td> </tr> <tr> <td>Airline tickets</td> <td>10%</td> </tr> </tbody> </table>	Item	Rates	Gasoline (per liter).....	LD 0.020	Diesel (per liter).....	LD 0.005	Cigarettes (per cigarette)	LD 0.010	Airline tickets	10%
Item	Rates												
Gasoline (per liter).....	LD 0.020												
Diesel (per liter).....	LD 0.005												
Cigarettes (per cigarette)	LD 0.010												
Airline tickets	10%												

Source: IMF, 2005a