

The industrial sector

1 - Evaluation of the previous plans and strategies

A – The previous strategies

*** Oil and gas strategy**

Oil policy in Iraq is considered to be the nerve that moves all of the other sectors in the national economy which affects their trends of development. Also, it has very sensitive and dangerous responses. The seventies period has witnessed a major development in the domain of exploration, drilling and production. More than 40 oil fields have been explored which increased the production rates to 3.5 million barrels per day in 1979, up from 1.5 million barrels per day in 1970. Hundreds of oil wells were drilled and thousands of kilometers of pipelines were extended to the national and the neighboring countries ports, in addition to investing in gas widely and the creating a large number of refineries.

In the eighties, a large part of the oil facilities has been destroyed, where production rates have fallen to less than half. Exploration, drilling and development of gas industry slowed. However, during the mid-eighties, three refineries were established with refining capacity of 300 thousand barrels per day.

In the nineties, the oil and gas activity collapsed gradually because of the successive wars. The infrastructure was destroyed. The oil and gas activity had no access to the latest developments in the field of oil technology and spare parts during the period of the economic embargo and sanctions, which led to the suspension of a number of projects entrusted to the custody of foreign companies, as well as the storage capacity and crude oil reservoirs were damaged. A number of refineries and pipeline systems was damaged too.

As a result of the policies pursued during the previous period. The proven oil reserves in Iraq became about 12% of the global oil reserves. The proven oil reserves developed from 34 billion barrels in 1960 to 112 billion barrels in 1990 due to the activity of exploration and fields' development. In 2001, the reserve reached to 115 billion barrels as a result of studies and re-evaluation of the geological and reservoir information by using modern methodologies. Iraq ranked the third or fourth of oil reserves. The amount of potential reserves reached to 214 billion barrels, many of which are candidates to be reclassified as proven reserves.

After 2003 oil policy has focused on achieving an increase in reserves of oil and gas, expanding production capacity, and exporting crude oil and gas to meet the growing demands of oil and gas products within the country and improving the quality, as well as inviting foreign companies to participate in the development of oil and gas fields under production-sharing contracts.

In spite of the policy for the period 2004-2008, this activity was unable to return to what it used to be before 1980. Damage is still affecting the refineries capacity and their products quality. This includes grease refineries and some helping units, which forced us to import petroleum products and liquid gas since 2004 until now, but with gradually decreasing rates whenever an improvement occurs.

*** Electricity strategy**

For the purpose of the advancement of electrical power in Iraq to be one of the developed Arab States, in the seventies and eighties, a strategy was adopted aiming at building and upgrading of the electrical systems. A number of thermal plants were built to increase generating capacity, as well as, establishing a number of strategic stations in the eighties, but the outbreak of wars led to the suspension of work in those stations.

The activity of electricity has been very much affected like the rest of the activities as a result of the first Gulf War and the economic blockade, which resulted in the cessation of all power projects which produce electric power.

After 2003 the electricity system has suffered from a lack of electricity production to approximately 50% of the required load which equals 6500 mega-watts, while the reliable production capacity was 3500 mega-watts, in addition to system bottlenecks, problems of fuel and transport networks, and electricity transport and distribution. To sustain the work of the system, cutting power program has been implemented at the country level. The program is still working until now.

During the period 2004-2008, a policy was adopted to develop and increase the capacity of existing stations and improving the performance and effectiveness of the electrical systems by maintaining the stability of the valid capacity and increasing reliability as well as expanding and upgrading of transmission and distribution networks in all parts of Iraq, in addition to starting the establishment of projects of electric links with networks of neighboring countries, because of their economic returns, operating cost savings, and dealing with emergency situations that occur in the electrical system.

In fast-track procedures, contracts had been signed with several international companies that have good experience in the domain of electricity industry to supply Iraq with gas stations (quick monument type).

The adopted policy at this period includes encouraging the private sector to get engaged in investment, but it did not show signs of that with the exception of the entry of the private sector in the construction of power plant capacity of 500 MW in Kurdistan province - Arbil.

What distinguishes the activity of electricity for the previous period is being a monopoly of the public sector. The private sector did not enter in any area of the activity of electricity.

*** Strategy of manufacturing and extractive industries (excluding oil)**

Manufacturing activity has received considerable attention over the past decades and has funds have been allocated in the plans and methods of investment in those years which enabled the sector to establish a wide industrial base that covered most branches of manufacturing. But the characteristic of that period shows the governmental sector is controlling all economic and social activities, while the private sector was cornered in a very narrow area in the field of large-scale industries. On the hand, the domain of small and medium industries was relatively open.

The Iraq entry in war affected many of the plants significantly and led to the destruction of the buildings, equipment and machinery in addition to the infiltration of labor, which had a negative impact on the Iraqi industry. The imposition of international sanctions and economic blockade has led to back access to the necessary equipment for the rehabilitation of factories, supply of the spare parts, and direct contact with companies which affected the national industry.

After the events of 2003, most of the factories were targets to the looting and robberies as well as some of them were affected by military action. Assets of public companies had been frozen which led to suspension of work and production. Some attempts were initiated to find the necessary funding through opening the door to private sector investors by leasing the State-owned public companies factories or converted them to stock companies. But the ministry failed to the find the appropriate offers due the security conditions.

In 2004, the Ministry of Industry and Minerals has prepared the immediate operating plan and obtained a grant of \$ 50 million (equivalent to 75 billion Dinars) in the form of a revolving loan for the strategic companies (Iraq Cement, Southern Cement, phosphates, petrochemicals, North Fertilizers, and South Fertilizers) which have contributed to start the operation of these companies. In 2005-2006, the ministry conducted a survey of its firms to estimate the costs which was estimated about half a billion dollars (equivalent to 2250 billion dinars). However, since 2006, the Ministry of Industry and Minerals had tried to obtain financing for the rehabilitation of companies. Because the amounts that have been allocated within the investment budget were low (14 billion dinars in 2006, 42 billion in 2007) and did not meet the actual need, resulting the lack of advancement of the sector more effectively during these two years. But that the amounts that have been allocated in the 2008 investment budget (668 billion Iraqi dinars) have had much impact on making contracts to assist the rehabilitation of the companies and supplying some production lines needed to the advancement of Iraq's industry to be attractive investments, in addition to following up the implementation of contracts signed in 2008 to supply the requirements of rehabilitation and development of plants through the implementation of the investment budget for 2009 with the amount of 595 billion dinars.

*** R & D strategy**

After 2003, the Ministry of Science and Technology policy of research and development focused on encouraging scientific research for peaceful purposes, and worked with the public and private industrial sector, the government agencies and the educational institutions for the restoration and improvement of infrastructure and industrial base in Iraq, as well as working on technology transfer.

*** Strategy of the industrial activity**

In the nineties, a policy to support the private industrial sector was adopted through financing of industrial projects with granting of loans supported the State in order to: develop the sector, raise the level of investors income, modernize technology, take care of industrial zones in Iraq, deliver the necessary services to these zones, taking care of the small-scale industries and crafts through the continued support by granting them loans and supply of raw materials and petroleum products in order to sustain the work and helping them to market their products and providing technical and economic consulting.

Following the imposition of economic blockade, the private sector was prevented to import many materials, including the necessary materials for industry. The State has assisted the private sector through adopted the principle of industrial integration between the public sector and private industrial sector.

In 1999, support was provided to this sector through a memorandum of understanding with the company SOMO, which was the conclusion of contracts with Jordanian companies, Syria and Turkey to import raw materials for the private sector, as well as the contract has been signed with Turkish companies. Also, a contract has been signed with the Turkish company Nuray Dash to import machinery, however, the contract had been frozen because of the circumstances in the country after 2003.

After the year 2003, the private industrial sector has suffered from a huge collapse as most of the industrial facilities and belonging of the private sector have stopped.

Starting from 2006, the Ministry of Industry and Minerals – The General Directorate for Industrial Development contributed to granting 8346 licenses for establishing industrial projects of all industrial sectors. 605 projects completed establishment. In addition, support was provided to industrial projects through soft loans. The total number of projects that benefit from this loan is of 5414 of \$ 93.4 million for 2008 (which is equivalent to 112080 million dinars). Also, 1363 projects in 2007 have got the loan with a total amount of 20 million dollars (the equivalent of 24 billion dinars), as well as providing support for industrial projects through providing land for 3015 industrial projects and operational requirements and raw materials and fuel for the 5241 projects.

B - The National Development Strategy 2007-2010

Facing the reality of the deterioration of industry as we have noted above, especially after 2003, and the destruction that had happen to it, the national development strategy have estimated the need to spend 63960 billion dinars for the period 2007-2010 for the advancement of industrial activity (oil and gas, electricity, extractive and manufacturing) which forms 28% of the total amounts of all economic activities of 225240 billion dinars.

It is expected that the oil sector would grow at the Compound Annual Growth Rate (CAGR) 13% during this period. The non-oil sector would grow at the rate of 37% with the current rates which increases the proportion of its contribution to the composition of GDP to be 40.6% in 2010 after it was 23% in 2006.

Also, it is expected that the domestic investment contributes to about 94200 billion dinars, and the remaining of 131040 billion dinars is supposed to be provide from external funding sources, which will be 58.2% of the total investment required to be provided.

However, through the figures in Tables 1-3 below, we note that the actual allocation for electricity and oil and gas activities in the investment methodology for the years 2007-2009 has not lived up to the required level as diagnosed in the National Development Strategy for the years 2007-2010.

The actual allocation of the activity of manufacturing and extractive industries (excluding oil) was not up to what is required in the national development strategy in 2007. But it increased in the years 2008 and 2009 two and a half times of what is in the diagnosed in the strategy. It is noted that the Development Strategy neglected the public industrial sector and focused on the private sector. The public sector has been neglected for a period of time until 2008.

Table 1

Proportion of the allocations approved to the proposed allocations in the national development strategy NDS of the activity of the oil and gas.

(Amounts in millions of dinars)

| Years | The allocations proposed in the NDS | The allocations approved in the investment budget | The ratio of the approved to the NDS | the proportion of expenditure to the annual allocations |
|-------|-------------------------------------|---|--------------------------------------|---|
| 2004 | - | 1200000 | - | 57% |
| 2005 | - | 3000000 | - | 48% |
| 2006 | - | 4433000 | - | 31% |
| 2007 | 10080000 | 2875008 | 29% | 60% |
| 2008 | 10440000 | 3854602 | 37% | 98% |
| 2009 | 11160000 | 2603550 | 23% | - |

Table 2

Proportion of the allocations approved to the proposed allocations in the national development strategy NDS of the activity of electricity.

(Amounts in millions of dinars)

| Years | The allocations proposed in the NDS | The allocations approved in the investment budget | The ratio of the approved to the NDS | the proportion of expenditure to the annual allocations |
|-------|-------------------------------------|---|--------------------------------------|---|
| 2004 | - | 201000 | - | 80% |
| 2005 | - | 440000 | - | 70% |
| 2006 | - | 1746030 | - | 71% |
| 2007 | 7200000 | 1745055 | 24% | 87% |
| 2008 | 5280000 | 4473787.8 | 85% | 98% |
| 2009 | 4200000 | 127538.4 | 30% | - |

Table 3

Proportion of the allocations approved to the proposed allocations in the national development strategy NDS of the activity of manufacturing and extractive industries (excluding oil).

(Amounts in millions of dinars)

| Years | The allocations proposed in the NDS | The allocations approved in the investment budget | The ratio of the approved to the NDS | the proportion of expenditure to the annual allocations |
|-------|-------------------------------------|---|--------------------------------------|---|
| 2004 | - | 7370 | - | 80% |
| 2005 | - | 7252 | - | (8%) 100% |
| 2006 | - | (14497) 13500 | - | (51%) 100% |
| 2007 | 360000 | (41775)40750 | (12%)11% | (31%)100% |
| 2008 | 240000 | 668165 | 278% | (30%)100% |
| 2009 | 240000 | 595000 | 248% | - |

Note: Figures of the approved allocations and exchange rate represent the amount that has been provided to us by the representative of the Ministry of Industry and Minerals in the Commission of the industrial sector analysis. The amounts in parentheses represent the amounts that have been provided to us by the industrial services sector in the Ministry of Industry and Minerals.

2 - Status of the industrial activity in its various dimensions

A - The economic dimensions

This activity has fluctuated in the proportion of its contribution to the formation of GDP at current prices, where the figure was 56.8% in 2007 after it was 66.4% in 1979. It declined thereafter to 34% in 1988 and then increasing back up to 69.2% in 1990 and then up to 76.2% in 2001 and returned to decrease to 60.6% in 2004.

When following up the development of its contribution to GDP from 2004 to 2007, we note the increase of the activities proportion in the GDP from 32235265.2 million dinar in 2004 to 91260111.9 million dinar in 2007 in the current prices with the rate of 90% compared to 2004.

While its contribution to GDP in the fixed prices for the base year of 1988 has increased from 21227.7 million dinars in 2004 to 22010.1 million dinars in 2007, with an increase rate of only 3.7% compared to 2004.

Table 4

Production and gross domestic product of industrial activity (oil, gas, electricity, manufacturing and extraction) for the years 2004-2007

(Amounts in millions of dinars)

| Years | Production | GDP at current prices | GDP for the base year of 1988 | workers compensation | surplus operations and waste |
|-------|------------|-----------------------|-------------------------------|----------------------|------------------------------|
| 2004 | 35936966.4 | 32235265.2 | 21227.7 | 844546.3 | 31315837.1 |
| 2005 | 48565655.3 | 44088536.2 | 19843.1 | 919428.1 | 42983450.4 |
| 2006 | 61163230.4 | 55283502.8 | 21003.2 | 1105085.8 | 53689192.2 |
| 2007 | - | 61260111.9 | 22010.1 | - | - |

Source: Database of the Central Agency for Statistics and Information Technology.

Note: Amounts include the activity of the water.

Iraq's per capita from the total industrial activity in current prices has increased was about 1187740.059 dinar in 2004 to 2035422.151 dinars in 2007. the increase rate was 71.4%.

As for the composition of the fixed capital of industrial activity in current prices, it ranged between 2017718.6 million dinars in 2004 to 15670142.8 million dinars in 2007. The public sector possessed 99.6% in 2007 of the composition of fixed capital of industrial activity. In below the details of the economic indicators of the activities level of industrial activity:

*** Oil and gas activity:**

Oil and gas was discovered in Iraq since early years of the last century and has become one of the most important sources of energy, and a major source of supplementing the national economy. This sector has been affected by the events in Iraq, causing fluctuations in the quantities of oil exported with delayed in gas investment plans and programs which is burned in vain.

Through the available data, we note that the rate of daily production of crude oil in 2004 was 1995 barrels per day and then rose in 2008 to 2285 thousand barrels per day, with increase rate of 14.5% compared to 2004, but despite that, it could not bring off the production average of 1979 where it reached its highest production of 3564 thousand barrels per day.

The export of crude oil for the years 2004-2007 has witnessed an increase. the quantity of oil exported during the year 2004 was 1535 thousand barrels per day increased to 1849 thousand barrels per day in 2008, , with increase rate of 20.5% while the value of crude oil in 2007 was \$ 39.7755 billion.

The proven reserves of gas is 3100 billion cubic meters and the potential is 9000 billion cubic meters, and from the available data, the amount of natural gas has increased in 2008 to be 14848 million cubic meters a year, after it was 13408 million cubic meters a year in 2004, with increase rate of 10.7%, but the proportion of 40.9% of the gas produced is burned.

Concerning the oil derivatives industry, all of facilities in the country have went through liquidation after a heavy damage in 1990, which led to a decline in the actual capacity from the designed capacity by 32% for 2007, which led to a shortfall in filling the needs of the growing domestic consumption of each product of gasoline, kerosene, gas oil and liquid gas.

The destruction of thermal power stations, then replacing them with turbine generating stations to shorten the time required for the provision of electric power have led to reducing consumption of fuel oil in thermal power stations and using oil gas as fuel for the alternative stations. This caused a large surplus in the fuel oil produced by the existing refineries which led to make rapid solutions to solve the problem at the present time. That was by exporting part of it using the available marketing abilities and injecting the remaining in some oil wells until the implementation of projects of thermal units (cracking units).

From the data we note that the quantity of crude oil refined in 2004 amounted to 150 million barrels, and it fell to 120.9 in 2007, or 19.4%, due to frequent power outages from the oil refinery, which was reflected in the lives of the people living style. The domestic consumption of petroleum products (Principal gas, oil white oil, gas, oil, fuels, lubricating oil, ready) dropped. It became 18981 thousand cubic meters annually in 2005 after it was 20396 thousand cubic meters annually in 2004.

As a result of the conditions experienced by Iraq after 2003, oil pipelines have been a target to 181 sabotage operations during the period 2006 - 2008, compared with 170 sabotage operations during of in 2005. Also, the weariness of pipelines has led the erosion about 79 times in the period 2006 to 2008.

The Iraqi economy is primarily dependant on oil revenues in the composition of GDP and the general budget, where the percentage of the contribution of the activity of oil was 54% of the total GDP in 2007 and at current rates, while its rate in the GDP of the industrial activity was 95% in 2007.

From the available data, the activity of crude oil has contributed to the GDP ranging from a value of 30808.5 billion dinars in 2004 to 58203 billion

dinars in 2007 at current prices. For the constant prices for the base year of 1988 its contribution was 19789.4 million in 2004 increased to 20097.3 million dinars in 2007.

It is noted that the GDP in the current price has increased with growth average of 23.7% at constant prices for the base year of 1988 has increased with growth average of a very small amount of 0.5%.

The public sector has possessed a 100% of the activity of crude oil during the period 2004 to 2007.

Table 5

Production and gross domestic product of the activity of the crude oil for the years 2004 - 2007

(Amounts in millions of dinars)

| Years | Production | GDP at current prices | GDP for the base year of 1988 | workers compensation | surplus operations and waste |
|-------|------------|-----------------------|-------------------------------|----------------------|------------------------------|
| 2004 | 34066985 | 30808541.6 | 19789.4 | 152418 | 30656123.6 |
| 2005 | 45359932.2 | 42379784.7 | 18319.6 | 152418 | 42168552.7 |
| 2006 | 56285208.6 | 52851810.9 | 19327.5 | 211232 | 52606614.9 |
| 2007 | - | 58202989.1 | 20097.3 | - | - |

Source: Database of the Central Agency for Statistics and Information Technology.

But its contribution to the fixed capital composition at the current prices has increased for 2007 to be 6000469.4 million dinar after it was 448719 million dinar in 2004, an annual growth rate amounted to 137%.

The total composition of the oil activity at constant prices of has increased from 932793.8 thousand dinars in 2004 to be 8911839.4 thousand dinars in 2007, an average growth of 112%. This indicates the increase of investment spending in the activity of crude oil.

***The activity of electricity**

The activity of electricity represents an important and essential pillar for the most of economic activities, and the degree of its linkages reflects the degree of forward and backward linkages between this sector and the rest of the economic sectors.

The designed generating capacity of the national power system in Iraq reached about 9500 MW in the pre-Gulf War II in 1990, where the production was covering the entire energy demand up to 1994. The deficit in power generation started growing as a results of wars and economic

blockade and stopping the development plans, which resulted in increasing the deficit gap, as the generating capacity achieved as an annual average is 3425 MW compared to the demand of 4680 MW in 2003.

After April 2003, the status of electric power collapsed. The average of electricity generated in 2004 was about 3828 MW increased up to 4093 MW in 2007, with increase rate of 6.9%. The volume of demand was in the range between 5442 MW in 2004 to 7839 MW in 2007. In spite of this increase in production, the country still suffers from a shortage of electric power by 48% in 2007. There are many reason for the decline in the volume of the production capacities of electric power, among other reasons: the sabotage and destruction of the electrical system and its facilities, looting which reached to most of the economic facilities after 2003, deterioration of security, the insecurity for workers, the lack of the activity requirements like fuel and petroleum products, the difficulty in obtaining spare parts necessary to maintain the plants and production facilities, the deterioration of energy efficiency indicators and the decline of productivity, in addition to the obsolescence of the production and power generation plants.

From the available data, the activity of electricity and water has made a contribution to the GDP between the value of 441590.8 million dinars in 2004 to 1040.9141 billion dinars in 2007 at current prices, at the constant prices for the base year of 1988 the value-added ranged between 423.6 million dinars in 2004 to 709.1 million dinars 2007.

It is noted that the contribution of the activity of electricity and water in the GDP has reached 1% at current prices for 2007, but its contribution to the GDP of industrial activity amounted to 1.5% for the same year.

Table 6

Production and gross domestic product of the activity of the electricity and water for the years 2004 - 2007

(Amounts in millions of dinars)

| Years | Production | GDP at current prices | GDP for the base year of 1988 | workers compensation | surplus operations and waste |
|-------|------------|-----------------------|-------------------------------|----------------------|------------------------------|
| 2004 | 379690.2 | 441590.8 | 423.6 | 202087.4 | 235106.9 |
| 2005 | 937306.6 | 588352.9 | 489.6 | 206483.9 | 366471.7 |
| 2006 | 1646806.1 | 779387.5 | 537.4 | 221881.2 | 305954.2 |
| 2007 | - | 1040914.1 | 709.1 | - | - |

Source: Database of the Central Agency for Statistics and Information Technology.

Note: Amounts include the activity of the water

The total capital composition of the activity of water and electricity at current rates for the year 2007 was 9339082.7 million dinar after being 1368935.9 million dinar in 2004; an annual growth rate amounted to 89.5%.

*** The activity of manufacturing and extractive industries (excluding oil)**

This activity has seen a decline in the proportion of its contribution to the generation of GDP, where the figure was 1.9% in 2007. Considering that, this figure was 6% in 1979 and 13.9% in 1988, and then declined to 3.8% in 1990 and continued to back down to 1.5% in 2001. However, its contribution percentage of the GDP in the industrial activity (3%) has not changed in the period of 2004 to 2007.

The reason for the decline in manufacturing and extractive activity (except oil) is the low production capacities due to: the insecurity, the decline of an enabling environment for the industry in the dumping cheap products in the markets, the lack of laws that regulate the industrial work, the lack of the method to implement the effective laws, the decline of providing power and gas to plants to the minimum limits, destruction and looting of the production facilities which belong to public sector, the lack of funding for the rehabilitation, the obsolescence of the production lines at industrial companies, the increased number of ineffective workers, however, effective impact on the cost of production, the difficulty of competition, the suspension of about 70% of private enterprises because of insecurity and the inability to compete with imported goods.

The Ministry of Industry and Minerals directs and develops the industrial and mining activity through managing 67 state-owned companies, including 19 companies that were attached to the Ministry from the Military Industrialization Commission. These public companies include 250 plants that work in various industrial areas; divided into six industrial sectors, with more than 190 thousand employees.

The manufacturing and extractive activity in the public and private sectors witnessed a decrease in the number of installations in 2007 by 23.6% compared to 2004; however, the number of workers has increased by 9% compared to 2007.

From the available data, we note that the value of production ranged between 1490291.2 million dinars in 2004 to 3231.2157 billion dinars in 2006, achieving with this a contribution in the GDP between the value of 981532.8 million dinars in 2004 to 2016.2087 billion dinars in 2007 at current rates, an annual growth rate amounted 26.9%. At constant prices for

the base year of 1988, it fluctuated between 1014.7 million dinars in 2004 to 1203.7 million dinars in 2007; an annual growth rate amounted to 5.9%.

Table 7

Production and gross domestic product of the activity of manufacturing and extractive industries (excluding oil) for the years 200-2007

(Amounts in millions of dinars)

| Years | Production | GDP at current prices | GDP for the base year of 1988 | workers compensation | surplus operations and waste |
|-------|------------|-----------------------|-------------------------------|----------------------|------------------------------|
| 2004 | 1490291.2 | 985132.8 | 1014.7 | 490040.9 | 424606.6 |
| 2005 | 2268416.5 | 1120398.6 | 1033.9 | 560526.2 | 448426 |
| 2006 | 3231212.7 | 1652304.4 | 1138.3 | 671972.6 | 776623.1 |
| 2007 | - | 2016206.7 | 1203.7 | - | - |

Source: Database of the Central Agency for Statistics and Information Technology.

The activity's contribution to the fixed capital composition at current prices ranged from 200063.6 million dinars in 2004 to 330590.6 million dinars in 2007; a growth rate of 18.2%. In spite of this, what has been achieved of increases in investment are still lower than it was during 2002. It indicates the need for optimal use of existing capacities and increase production and productivity to achieve higher growth rates in output depending on the accumulated assets to partially offset the decline in investments.

Accordingly, the economic dimensions for the industrial activity status could be summarized in the following points:

- 1 - the delay in providing financial support to industrial firms for the reconstruction and rehabilitation of strategic industries that contribute to the reconstruction of Iraq and the infrastructure. The investment budget in 2008 was not sufficient for operating and rehabilitating of factories, which amounted in the years 2004-2007 (7.3, 13.5, 7.2, 70.75 billion dinars), respectively.
- 2 - The absence of relative protectionist policies for the industries from the random imports of foreign goods.
- 3 - The lack of legislation and laws that protect intellectual property rights of inventions and innovations in the field of industries and industrial projects.
- 4 - The weak role of the private sector in contributing in the economic projects, because of the weakness of the national capital in this sector and its limited financial services, where it could not compete with the foreign companies and investments.

B - The social dimensions

- 1 - High proportion of unemployed in the country, because of the lack of new industrial projects to stimulate investment in various sectors and work to provide employment opportunities to absorb the unemployed.
- 2 - The large phenomenon of intermediaries in the import and export, sale and purchase of goods and traded industrial products in the local markets and thus reflected negatively on the income of Iraqi citizens.
- 3 - Because of the circumstances facing the country and the suffering of Iraqi society from the scourge of war and the blockade, the people became weak on the scientific and cultural level with low degree of readiness to deal with advanced technology.
- 4 - Some of the prevailing values and social customs are still in control on the Iraqi society; which affects the role that can be played by the Iraqi citizens in the advancement of the country's industrial status.

C - The environmental dimensions

The previous wars have reflected their effects on the environment of Iraq, through:

- 1 - There are more than 25 million mines and non-blown projectile under the water and land of Iraq, which wasted the opportunity to establish a number of industrial projects.
- 2 - The arable land suffered from the phenomenon of desertification, which led to the lack of agricultural crops used as raw material in industrial projects.
- 3 - The pollution of the Iraqi environment by the gas and liquid waste (radiological, chemical and biological) requires many years to be eliminated and limits the investment opportunities in industrial projects.
- 4 - The weak of Iraq presence and interaction with the agreements that deal with improving and protecting the environment.
- 5 - Not adopting the comprehensive quality standards in the management of the environment in Iraq.
- 6 - Some factories are still dumping waste liquids into water sources without treatment, which poses a threat to the aquatic environment because they contain toxic substances and organics, Nitrogen and phosphate wastes what affect the consumption of dissolved oxygen and causing severe damage to aquatic biota.
- 7 - Many of the projects not in conformity with the environmental site parameters such as Badush Cement plant, Cement plant Cement Fallujah and the south, which are a threat to the settlement outposts, a result of emissions of various gaseous pollutants.

- 8 - Lack of means to control the emissions in the brick and cement plants, and if it was there it would be not efficient, in addition to the use of dirty fuel (black oil). This applies to power plants and oil refineries too.
- 9 - Inefficiency of waste liquids treatment units of the in companies and factories of sectors (public, mixed, private), which leads to the discharge of water that is dangerous environmentally into sewage rivers or the houses.
- 10 - Using low-level technology and the lack of financial resources for treatment and safe disposal of hazardous waste or for the development of the technology used.
- 11 – The lack of technical facilities for the transport, storage, processing and burying or burning of hazardous waste in the governorates of Iraq, which poses health risks and leads to environmental pollution of air, soil, water or beyond that; human life.
- 12 - The lack of legislation requiring the industrial projects owners to shoulder the responsibility of to collect, transport and process solid waste.

3 - Challenges facing the development process

- 1 - One of the most important challenges facing the development process in the light of the open market policy is the issuance of laws and regulations concern: the banking system, the relative protection of Iraqi products, domestic and foreign and government investments, the increase of the number of employees and other laws to support the private sector and provide opportunities to participate in large projects between the State and the private sector .
- 2 - The brain drain of scientific and technical personnel, which public and private sectors depend on to build plans and policies, execute projects and transfer the accumulated experience to current generations.
- 3 – The manpower in the industrial activity need to build capacity for rehabilitation to keep up with technological developments.
- 4 - The lack of model industrial zones for private industry throughout the provinces, causing the random distribution of polluting industries, and increasing environmental pollution, which adversely affects public health.
- 5 – The need to re-examine the basic design of cities and governorates of Iraq and the form in which it regulates the spatial distribution of population and spatial distribution of projects.
- 6 – The weariness of production lines of most industrial facilities is large. The use of old technology in the production of most factories led to higher prices for the product in addition to poor quality and the disability of the product to compete with the imported items in terms of price and quality, and that development needs large sums of money.
- 7 – The Lack of energy (electricity and fuel) for many industrial projects, which led to a shortage of petroleum products as well as lower production

of factories, which was reflected in the price of the product.

8 – The overriding of electricity lines and the unjustified exceptions to the network, which has led to the lack of electrical power for industrial plants properly.

9 - The scarcity of water resources and the low river levels lead to reduced generating capacity for steam power plants and hydropower plants projects which affects the industrial capacity.

10- The contamination of water as a result of industrial waste water and hazardous waste resulting from various activities due to lack of treatment prior throwing in the rivers.

11 - The reluctance of international and local companies to attend and be present in the workplace because of the bad security situation, which resulted emerging of weak intermediate companies and offices which led to the increase of corruption and reluctance to work.

12 - Administrative and financial corruption which spread in all institutions and facilities.