

The Agricultural Sector: Contents

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Introduction

The agricultural sector is characterized with several characteristics that distinguish it from other economical activities; these could be summarized as follows:

1. High sensitivity to natural conditions

Discrepancies among climatic conditions (rain, temperatures ...) from one season to another, impacts the level of agricultural production, especially in perpetual farming areas, and in all areas in general, this results in inconsistent relationship between production inputs (seeds, fertilizers, ploughing, weeding, and hoeing ...) and the final product, and consequently production fluctuations which requires government interference to restore balance for the benefit of producers, consumers, or both. Man's ability to control agricultural environment is still limited and varies from one country to other according to the development achieved in Biotechnology which is characterized in turn by the location of invention; this explains the slow transfer of these innovations to countries with differences in environmental conditions.

2. The Seasonal and Biological Nature

- a) Each group of agricultural crops has its suitable season and can't be planted in other seasons. With the advancements in some agricultural activities, such as in the case of (green houses) in plant production from one side, and in the case of poultry production in animal production, in the other, to achieve round-year production.
- b) Production cycle, (the period between starting the production process and getting the final product) is long, compared to production cycle in other activities. In spite of human's achievements in Biotechnology and especially in genetic engineering and hybridization which lead to

effective results in innovating new breeds and types with high productivity compared to traditional breeds, but shortening the production cycle in the agricultural activity is still difficult to achieve. ... but limitations on shortening production cycle makes the task of increased production across time difficult, which make growth sources rely on two sources:

First – Horizontal expansion: increase production elements, land, water, work equipment, and production requirements.

Second- Vertical expansion: increase the productivity of production elements and appropriate application of Biotechnology innovations.

3. The local nature of the agricultural production

Since the agricultural activity is usually attached to climate, soil, and peoples' traditions and norms (people who work in agriculture), makes the agricultural activity and its advancement requirements less dependent on external factors, for example the inability to grow palm trees and citrus in northern Iraq, or to have certain areas specialize in growing potato.

First: Comparing the Previous Strategies to the National Development Strategy (NDS)

1. The previous strategies and the strategy which was prepared by the sectorial ministries to conform with the concepts and orientations of the national development strategy (NDS) but the problem lied in shortages in the funds allocated, in one side, and the poor executive capacities in the other, lead to failure in achieving (NDS) objectives.

(Amounts in million Dollars)

Ministry	Year	Proposed Allocations(NDS)	Allocations Approved in the Plan	Percentage of approved to the NDS
Water Resources	2009	1800000	439078.989	0.24
Water Resources	2008	1800000	434000	0.24
Water Resources	2007	1254000.00	312220.00	0.25
Agriculture	2007	1320000	58916	0.045
Agriculture	2008	1200000	95350	0.079
Agriculture	2009	1200000	110400	0.092

The new initiative of the prime minister added new blood to the agricultural sector's body; it worked as a surgeon knife; removed stifles and resolved serious complications. Year 2007 witnessed the opening and operation of the main pump station for the general Nassereyeh estuary, it's the biggest of it's type in the Middle East which will collect saline water from the general estuary and the main estuaries then deliver it to the Arab Gulf. Moreover, other six specialized loaning funds were established this year to provide soft loans for farmers in the fields of horticulture, palm trees, technology introduction, and improving animal production projects, however, there was a return to implement covered fields policy, in addition to rehabilitation and renovation works in several projects in central and southern Iraq.

But there was no progress in the field of "Agricultural Industry" in its broad sense to the agricultural sector, its significant to the development of this sector which owns a huge and diverse production. Developments in consumption demands the development of integrated agro-industries to develop and process the agricultural products according to the country's needs,

consumers' taste, the updates of the local and international markets requirements ', and the development of production methods.

We believe that the new strategy should focus on investing in the following:

- Establishing integrated Agro-industrial complexes, on appropriate techno-economic bases, then transforming them into stock companies or renting them to the private sector, after accomplishing them, according to terms that will guarantee the validity and sustainability of the these facilities.
- Encouraging the establishment of agro companies through the development of stock markets, and state contribution by purchasing shares in the new companies without taking public sector restrictions to these companies.
- Intensifying governmental investments in agricultural land reform projects by adopting the "integrated project" approach rather than the current "multi –consecutive-contract" approach adopted by the Ministry of Water resources, which usually requires tens of years to implement!.While in the "integrated project" approach, all works are executed in parallel and agreement, the way it happened in the first phase of Al-Dujailah agro-industrial complex.

2. Research and Technology Strategy

Agricultural scientific research and technology transference to the Iraqi agricultural sector is vital to achieve agricultural development in Iraq, especially with huge gap between Iraq's current agricultural position, and the position of the external world. However, there is a huge room for development in the Iraqi agricultural sector. The strategy is based on conducting research, and applied studies aiming to improve and develop water resources, soil, land, and livestock, and to achieve agricultural development to serve the food and industrial security for Iraq.

Second: Current Agricultural Position

1) Agricultural Lands

The total size of all types 1,2,3,4, of agricultural lands (arable) irrigated and perpetual is (44460) million square meters. The total size of lands available for irrigation is (22860) million square meters, according to the technical and economic potentials for it, covering these lands with irrigation networks depends on water availability, especially with the wide plans of riverhead countries in light of the current unfair usage of water by countries sharing rivers basins.

Size of irrigated lands is 13.2400 s-m representing 58% of irrigable lands, and this is a low percentage, since FAO estimates about 62% of the irrigated planted lands in the middle east and north Africa region. The fully or partially reclaimed lands till 2008 around 4.100 sm. Significant part of these is influenced with salinity and abundant ground water especially in central and southern areas as a result of irrigation nets and bad operating and maintenance work.

Iraq loose around up to 5% arable lands for the above reasons, World Bank estimates around 2% worldwide lose, the difference between the two percents is an indicator of ineffective of maintenance, sustainability, and preserve work of the agricultural land in Iraq.

2) Plant Production

Field crops occupy a wide area in agricultural production as it is estimated to be around 10000 s-m of which 41% in Nainawa Governorate, while vegetables other than potato occupied in 1997 around (2.487.946) sm.

Statistics show a decline in palm trees number from 32 million in 1960 to 16.2 million in 1989, palm tree productivity is characterized by deterioration to reach around 20kg/tree, without vertical improvement on the harvest of the one hectare of crops or fruits and high majority of farmers depend on bad quality seeds; around 80% of planted seeds..

Dates production

Years	Zuhdi	Other*	Production/ton
2000	682340	249200	931540
2001	654240	252550	906790
2002	690890	228580	919470
2003	554560	313830	868390
2004	313759	134625	448384
2005	271909	132123	404032
2006	273016	159344	432360
2007	265492	165369	430861

السنوات	الحنطة			الشعير			الشلب			المساحة المزروعة دونم
	المساحة المزروعة دونم	الانتاج طن	اجمالي الغلة كغم / دونم	المساحة المزروعة دونم	الانتاج طن	اجمالي الغلة كغم / دونم	المساحة المزروعة دونم	الانتاج طن	اجمالي الغلة كغم / دونم	
1990	4782790	1195819	250	7980067	1854316	232	339700	228768	673	305537
1991	10068508	1476400	147	9648336	768451	80	385454	189103	491	470171
1992	4809277	1310743	273	7076538	1353796	191	669533	237295	354	570067
1993	4743656	910971	192	6333283	890465	141	518607	261902	505	358353
1994	5077347	854042	168	5559493	853966	154	651020	382865	588	278466
1995	5701958	1091416	191	4675706	712366	152	657398	312804	476	218728
1996	5569119	1149998	207	4174503	647274	155	436580	282935	648	549691
1997	5498485	946711	172	3999097	429578	107	460956	274255	595	662892
1998	5781990	1474869	255	4186078	629863	151	604747	389475	644	885242
1999	5950744	1101598	185	4186926	282985	68	350761	218484	623	689646
2000	4308141	1040326	242	2306429	192697	84	16803	12398	738	304741
2001	5217911	2219446	425	2217167	712832	322	11252	4900	436	394162
2002	6594945	2589467	392.6	3862130	833437	215.8	216511	193767	895	735960
2003	6854925	2329198	340	4252945	860416	202	122485	81315	663.9	363980
2004	6159223	1832138	297.5	3829236	805445	210.3	351793	250275	711.4	739761
2005	6410663	2228362	347.6	4253284	754437	177.4	428243	308660	720.8	694559
2006	6054103	2286311	377.6	4103966	919307	224	502565	363338	723	657714
2007	6279514	2202777	350.8	4374883	748291	171	497365	392803	789.8	620409

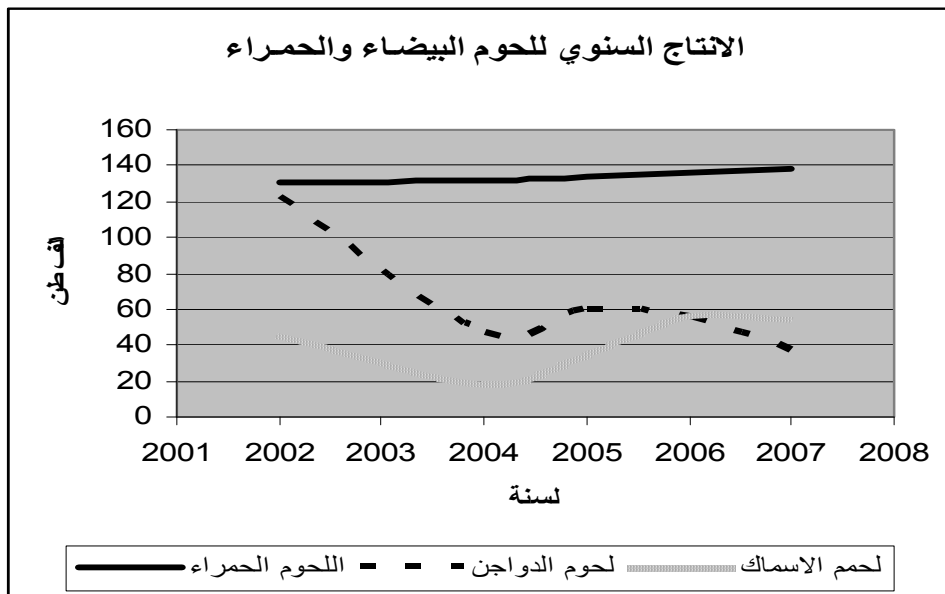
Production, land, and harvest development for strategic crops for the period (1990 – 2008)

Source: Central Office for Statistics and Information Technology (COSIT)

Table shows fluctuation in all stated indicators since the total land planted with wheat and barley its maximum level in 1991, around 20.000 s-m, (because of

a state order, at the time, to plant marginal lands) which had an adverse impact on harvest achieved in that year which reached minimum level 147kg/1000 s-m for wheat; the same land registered its minimum level in 2000 as result of draught accompanied by water shortage, while the maximum harvest achieved in wheat and barley was 425 and 322 kg/1000 sm consecutively, in 2001 and 2003, the same apply to wheat and maize. The low level of achieved harvest and its modest maximum levels reflect the need to develop production means and to improve the productivity of its components.

3. **Animal Production:** the second side of agricultural production is animal production, and it's an integral and complimentary part for the food basket in addition to its significant contribution to the industrial sector.



_____ Fish meat Poultry meat Red meat

The graphic shows the huge decline in poultry meat production because of the high production costs especially forage, inability to compete as a result of market flooding with cheap products, and the lack of critical cycles of the production process like assets fields in Samera'a, and investors refraining to

operate their farms as a result of informed support to this sector which applies to table eggs as well. As for pisciculture, again there is a clear decline of the (10000sm) fishing productivity in the basins (2kg) compared to other countries (50 kg), and medium-high level (35 kg/year), while the relatively high productivity of fish meat is justified by the violations in establishing none-certified basins and lakes for pisciculture that scattered across the country, lack of clear vision and strategic plans to solve the problems, led to deterioration in pisciculture productivity, however, red meat is not more fortunate, its numbers and productivity are declining progressively.

4. Water Resources:

First: It is known that the origins of our surface renewed water resources is outside Iraq in addition to the lack of agreement with the basins countries to guarantee a fair water share for Iraq.

In spite of what Iraq currently owns as a storage and control system e.g. dams, tanks, barrages, and regulators, the available water is still short in satisfying the actual needs, specially for the agricultural sector, in quality and quantity.

River Name	Iraqi – Syrian Border	
	Before Development	The expected after development
A- Euphrates river: Rate of incoming water (1billion cm) Water quality (1/million)	27.40 457	457 (1350 – 1250)
	Iraqi – Turkish Border	
	Before Development	The expected after development
B- Tigris River - Rate of incoming water (1 billion qm)	9.16*	19.43

- Water quality (1/million)	375	250
C- Al -Khabour	2.1.	2.1
D- Azzab alkabeer	14.00	14.23
E- Azzab Alsagheer	7.07	7.00
F- Alatheem	0.70	0.70
G- Dialy	5.86	4.00

What Iraq faced in the last water year ended in 30/09/2008 was a bitter experience that left an adverse impact on the agricultural production, already retarded, and on the live stock in particular, for the following reasons:

1. The draught and inappropriate climate conditions
2. Scarce incoming water in Tigris, Euphrates, and their branches.
3. Management and dams' operation problems.

First: current indicators indicate another scarce year since the size of available water deposit is low, the current and expected draining for the next hydrologic year is less than average, and up river countries pursuing their storage projects and adding new agricultural lands in addition to climate change which is spreading across the planet (our region is expected to witness more draught, including feeding basins).

Second: as a result of Iraq's geographic location in downstream, Iraq's water resources strategy is influenced by projects and activities in the upstream in one side, and by natural climatic conditions prevailing in the region, in the other. Without adopting appropriate water policies characterized by flexibility, competent management systems for water resources, long term plans, and considering water as a rare commodity, Iraq is bound to face difficult challenges in the near future as it did last year.

Third: the potential for less incoming water for Iraq is increasing on a daily basis, since some of the planned projects for irrigated farms in the upstream Euphrates and Tigris basin countries are partially accomplished while others are under construction, moreover the possibility of deterioration in water quality is increasing as well, because both Syria and Turkey seeks to plant

more than (2.4000)sm irrigated in Tigris basin, this will lead to shortage in Euphrates and Tigris incomings over 43%.

Fourth: Impact of the geographic location:

Iraq is located in a dry to semi-dry area, annual fall rate does not exceed 200 ml, and half of Iraq's land is almost desert where fall rates do not exceed 50 ml/ year. However, the rest of Iraq benefit from a fall that ranges between 150 – 450 ml/ year other than some limited mountain areas in east- north Iraq, where fall could reach up to 1000 ml/ year.

Fifth: incoming water resources available for agricultural activity:

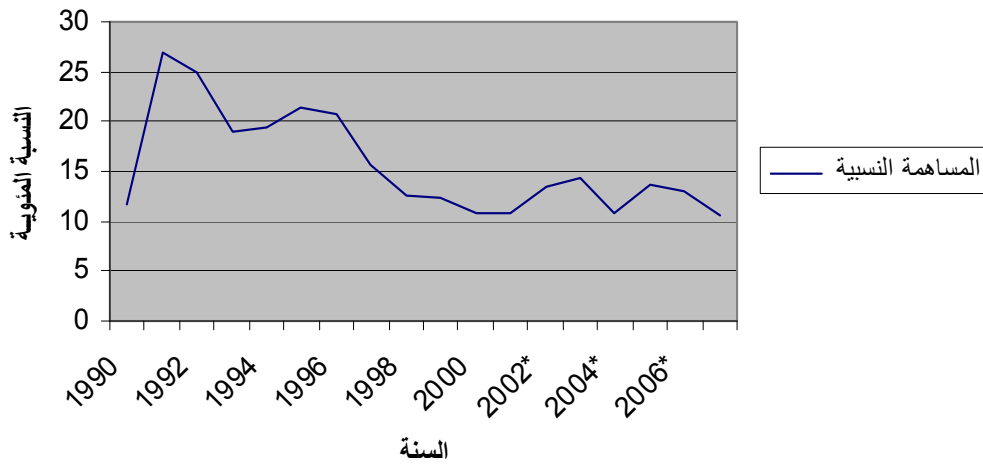
Incoming water resources available for agricultural activity is pawned to what takes place in the upstream countries, unless an agreement is reached to provide Iraq with previous knowledge of its expected water incomings, however, Iraq's water resources is characterized by its fluctuations from one year to another, deteriorating from a qualitative perspective as a result of storage and the polluted water drained to it from all the industrial, agricultural, and service activities, and neighboring countries adopting water policies that harmed to a high extent Iraq's annual share.

5- Economical Indicators:

The decreased economic indicators of contribution to the GDP and the size of governmental investment, and forming a stable capital, reflect the extent of decline in the agricultural sector; it's contribution to the GDP is around 11% and deteriorating as a result of its decreasing significance in its share of governmental investment, and low spending rates, and therefore, what is implemented of the investment plans.

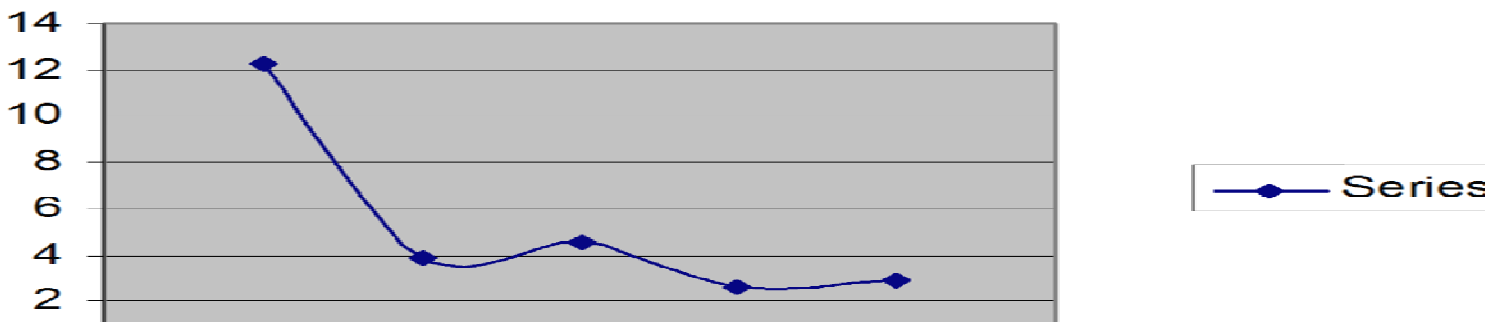
The proportional contribution for Agricultural, Fishing, and Forests in the GDP in the fixed prices 1988 = 100

المساهمة النسبية لنشاط الزراعة والصيد والغابات في GDP بالاسعار
الثابتة 100=1988



Proportional Significance for the Agricultural Sector According to the
Investment Allocations

الاهمية النسبية للقطاع الزراعي بموجب التخصيصات
الاستثمارية



Production, planted land, and harvest of wheat for (2003 – 2006)¹

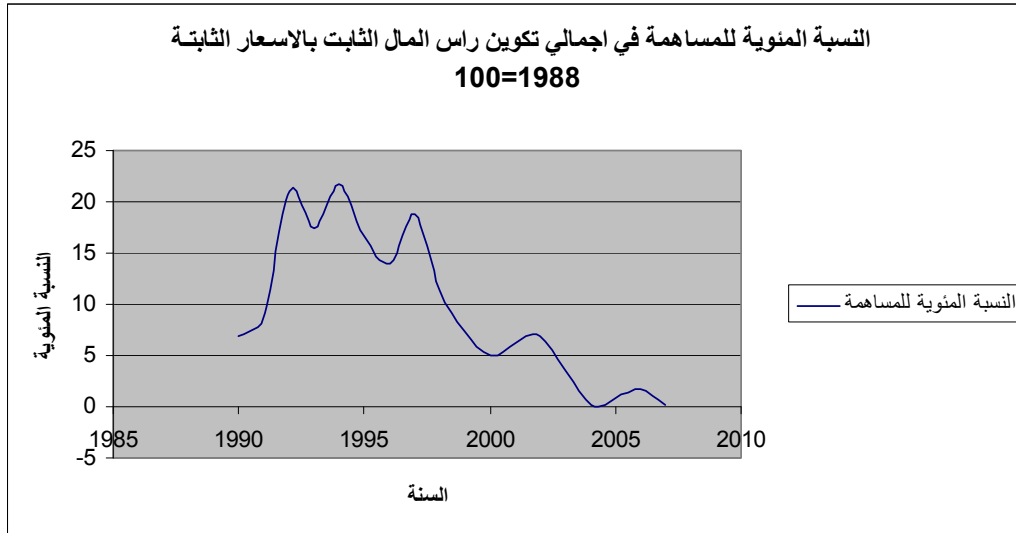
Approved allocations, and final expenditures for the ministry of water resources (in million Dinars)

number	year	allocation	spent	Percentage
1	2004	176300	40889	23%
2	2005	247586	197758	80%
3	2006	279373	181606	65%
4	2007	321563*		
5	2008	814979*		

*amended allocations

As for the formation of agricultural fixed capital this expresses the value of the annual additions on the fixed assets for the purpose of increasing the productive capacity or its performance, it is influenced by the GDP; it is subtracted from it for investment. The following table and graphic show the strong deterioration especially after the events of 2003 in the contribution of this significant sector in the total formation of the fixed capital.

Activities	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Agriculture, fishing, and forests	107 743	92358	10285 2	1386 86	28737 3	22823 3.2	10114. 6	7102 7.8	288997. 6	75400.9
Total formation of fixed capital	57574 7.3	81623 3	13871 20	2820 886. 2	45824 96	33182 61.6	4327.9 81.3	8650 594. 6	169961 02	32996102
Contribution percentage %	18.71	11.3	7.41	4.92	6.27	6.88	0.23	0.82	1/70	0.23



Third: Ecological and Geographic Dimensions in Agricultural Development

1. Ecological Dimension

Iraq is rich with ecological systems and great biological diversity, "Food and Agriculture" organization stated that there are more than 40% of the species of the world exist in Iraq...

Forests in the mountain areas in south Iraq (4.8) hectares represent in there vegetation cover with a wide biological diversity of forest trees, woods, and different wild plants, in addition to that it combines wild animals, some perished while others are about to, furthermore, different types of wild birds and other land wild animals. In the undulated areas (6.7)million hectares, grows a vegetation cover that changes according to seasons, and provides a rich pasture for livestock during the rainy seasons, together with number of wild animals, as for the deserts and steppes,(2.5)million hectare, several wild animals revel on the wild plants and herbs, some of which provide basis for livestock forage after rain fall, it's the living place for certain wild animal and birds.

In the hilly desert (16.9) million hectares, grows a vegetation cover adapted to desert conditions, changing seasonally, increase or decrease according to the rain's fall and time. This cover combines several types of plants and species.

Iraqi marshlands (355) thousand hectares, in addition to the water surfaces like lakes, tanks, river nets, and channels, constitute ecological system that is different from site to site, depending on climate and water quality, allows for a wide diversity of fish, birds, and aquatic species, buffalos are reared there, thousands of migrant birds settle temporarily in the area. Moreover, marshlands margins forms a complimentary system for the marshes and combines types of animals and plants capable to coexist with water refluece and seasonal floods.

Palm forests in central and south Iraq have a special eco system of their own, because of the numerous types of dates, (629) documented types, means for using these forests and coexisting with the crops, plants, and animals, in addition to the ground water in the oasis, although palm forests were an integral part of the Iraqi people's lives across history.

2. Geographic Dimension in Agricultural Development

A. Plant Production

The geographic pattern for plant production of grains, vegetables, industrial products, oil products, dates ... etc, is characterized by spreading in the governorates according to their germination conditions.

Some governorates achieved increased rates in their productivity during (2004 – 2008) which leads to meet food security requirements and preserving the agricultural pattern that confirm, from the planning perspective, with the objectives of geographic agricultural development for agricultural settlement in the governorates according to agricultural conditions, and potentials for agricultural production.

B- Animal Production:

The geographic spread of livestock, in light of the last survey of livestock, indicates a relative balance in livestock distribution across governorates and according to the appropriate geographic and climatic conditions for each type of livestock.

C- Irrigation projects, Channels, and land Reclamation

The study and analysis of the geographic frame for the irrigation projects, channels, and land reclamation show actual reclamation for around (5) million hectares across Iraq, which provides potential for balanced geographic development which is expected to enhance its results upon project accomplishment, in addition to the possibilities provided by projects such as establishing dams to guarantee the sustainability of agro activities, to overcome the perpetual agriculture problems, and discrepancy agricultural production and land.

Implementing such projects, in addition to the previous projects south, central, and north Iraq, like the general estuary, east Euphrates channel, Al-Amarah damp, and Mahrout land reclamation, will lead to positive results.

Fourth – Challenges Facing the Agricultural Development Process

Agro activity could realize and impact economic development, in other words, it can reach its specific objectives in a shorter period compared to any other activity, because it has primary and secondary links with the other activities, but it faces several challenges:

Natural Resources:

Owns un-exploited agricultural natural resources (land, water, scientific brains, labor force), waiting for intensive investment to use for increasing agro productivity; animal and plant production.

1. Water

It is known that water resources available for agro purposes are limited, in addition of lack of any agreement to guarantee a fair share of Tigris and Euphrates rivers, however, there are other challenges on the internal level, that are not less serious:

A- The random usage of water in the three main sectors: agriculture, industrial, and domestic, is still continuing, in addition to lack of internal coordination and absence of agreement among the main users which calls for developing a vision for water policy.

- B- Weak participation of water users in its management.
- C- Irrational methods of irrigation, especially in surface irrigation.

All this require a flexible system to manage the demand on water for getting the best usage of the available water, while taking social, political, economical, and ecological factors into account. Demand management strategies and tools will enable us to use water efficiently and in an equal and sustainable manner, weather in practices or policies. Basically, managing the demand on water requires making a difference in the behaviors and practices related to water usage.

2. Agricultural Lands

In Iraq, there are wide arable lands, but what is actually used is still small, however, some challenges still face using these lands and hinder its appropriate usage, as follows:

- A- The problems of salinity and copious in central and southern Iraq soil.
- B- Land fragmentation, and small agricultural acquisitions hinders efforts to develop agro processes and introduction of modern technology.
- C- The gypsum soil that spread across wide areas which constitute a challenge to agro development since it needs experience and special care to manage.
- D- The spread of dunes and erosion as a result of natural elements, these are serious risks facing agriculture.

3. Human Resources and Capacity Building

- A- The technical and administrative capacities for the people working in this sector is still in need of support, by enhancing extension, raising awareness, leading negotiations to reach acceptable agreements to improve water quality and quantity to guarantee a fair and acceptable share for Iraq.
- B- Severe shortages in all field research requirements, and the need to twin it with agricultural extension to apply research results and deliver them to the farmers.
- C- The need for technical means to transform the productive capacities to real capacities to bridge the gap between the

actual needs and actual production, even partially, since the achieved harvest rates are still humble and could be improved.

4. Agro Investments

The investment environment is still not attractive in spite of issuing the investment law number 13 for 2006, since no investments were pumped in the agricultural body to strengthen it, however, agro investments are the key to sustainable development and the best way to achieve sustainable food security, creating job opportunities, enhancing the income and nutrition of rural people, and decreasing migration from rural to urban areas.

The country is in need for annual, or even seasonal requirements, like agro machines, fertilizers, pesticides, and others, imported from abroad with huge amounts of money in hard currency, which could be transformed onto added value for the GDP, or capital accumulation, if we invest locally in these requirements.

Governmental investment plays a significant role in spending on the infrastructure, operation, and maintenance of the natural resources and providing and improving services, issuing the necessary laws and legislations to regulate processes, in addition to providing direct and indirect support. This methodology of state carrying all the burdens had the impact of: creating a feeling of carelessness which resulted in abuse and waste of these resources.

5. Environmental Challenges

Laws and legislation for the agricultural sector guarantees a sustainable environment but the problem is in the implementation of procedures. Despotic fishing and hunting; usage of electricity and poisons, irrational application of fertilizers and pesticides, and the lack of effective system for contention, and sewage water recycling process which require: preserving the bio diversity, monitoring the activities that adversely influence eco diversity, establishing reservoirs and organizing them to keep the types in their locations keeps eco systems, multiplication of endangered species, and establishing plan and animal genetic banks.

Future Vision for Water Resources Development

First: it is certain that planning to reach solutions for the above mentioned problems, which has political and social implication, requires answers to the following questions:

- 1) What are the available quantities of water available in the short, medium, and long terms?
- 2) What is the current and future need and demand?
- 3) To what extent needs could be satisfied?

Second: Answers to those questions, which are left to the concerned parties, will lead us to reasonable solutions, which might be:

- 1) Preparing more feasible strategies.
- 2) Reviewing the allocations of the various sectors
- 3) Rationalizing the daily use
- 4) Looking for new water resources

Third: After finding answers, we should provide bases for solutions, as follows:

- 1) Reliable data basis
- 2) Accurate monitoring system
- 3) Estimate and define natural resources: water, land, labor force
- 4) Identifying the needs: demand and usage
- 5) Surveys to identify waste, and efficient usage across the different sectors
- 6) Setting standards and instructions for water usage.

On light of the above mentioned factors, the plan should be prepared, and measures taken to solve complications such as:

- Accelerate the accomplishment of the projects because of its direct impact on water usages, like Al-Amara damp project.
- 7) Introducing more crops that can adapt with salinity, international training courses, genetic banks. Iraq is characterized by "combining a

huge number of products and pastures" which include around 40% of food products that are consumed across the world

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