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## The Political and Economic Dimensions of Arab Water Security and Their Impact on Food Security (2000-2013)

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### **Abstract:**

*The study aimed to recognize the political and economic dimensions of the Arab water security and their impact on food security. The study was launched from a zero-hypothesis that considers the political and economic dimensions of the Arab water security impacts on the Arab food security and there is a connection between the Arab water and the food production resources.*

*The study problem emerges from the close connection between the Arab water security and the Arab food. The impact of this connection is reflected on the political and economic conditions of the Arab societies whether negative or positive. That is why the researcher has studied this connection through answering the question (what is the impact of the political and economic dimensions of the Arab water security on the Arab food security?). to achieve the aims of the study and to check the hypotheses, the functional methodology was used through political geography.*

*The study reached important recommendations; the necessity of the Arab cooperation in the field of water by establishing complete plans which organize the process of food production, providing water, developing the Arab water resources to meet the needs of the developmental plans, building dams of every kind to save water for the times of summer and draughts, to establish an Arab fund to face the cases of the lack of water and providing food, to invest the Arab capitals in the field of water and food, to find a united Arab strategy based on cooperation.*

**Keywords:** Political dimensions, economic, water security, impact, food security

### **1. Introduction**

Water security is considered to be related to the food security and after that to the political and economic security. Achieving the national security without understanding the connection between its elements is difficult. There is no military security without economic security isolated from the food security which is resulted from the water security. Because water is extremely important in our life, God says in the holy Quran: 'From water, we made every living thing) [Surat Al-Anbiaa': verse 30].

Achieving self-sufficiency and food security is reflected positively on the improvement of food health especially for the poor and marginalized people by the good use and fair distribution of water for agricultural production. Also, the protection of ecological system will not be achieved except by the integration of the ecological systems through sustained management of water resources and the distribution of them by encouraging peace and cooperation between the countries on one river. We cannot manage the risks of water usage unless we find a safe way to face the floods, draughts, pollution and all the dangers connected to water.

So without the Arab water security and its impact on food security, we will find many obstacles to wheel of economic improvement and in many times disabling resources. So, the efforts of those concerned with the issue of water has been limited to provide the inhabitants of the Arab World with the necessary needs of water in the housing sector and then in the agricultural and industrial sectors. The national efforts have been eager to provide the agricultural sector with the necessary needs of water to keep it productive of the basic food needs of the inhabitants, where the water problem has turned into a political, economic and security in the first degree. And this is what the research I going to discuss and study.

#### *1.1. The Problem of the Study*

The issue of water in the Arab World is one of the most vital. In addition, it is the most controversial. From another point of view, it is economical with political, economic and nutritional dimensions. It is also a security and strategic matter at the same time because it is related to the survival of the countries in the Arab region and its peoples within the accelerating political and economic variables in general where water security is considered the biggest challenge that faces the Arab World.

So we have to recognize the water dilemma and its impact on food, the economic and political results and discuss it through recognizing if there is a relationship between water security and Arab food. This relationship might be reflected on the political and economic conditions that the Arab societies live whether positive or negative, so the main question of the study problem: How much is the effect of political and economic dimensions on the Arab water security and its impact on food security?

### 1.2. The Importance of the Study

The scientific importance of the study comes from studying the effect between political and economic dimensions on food security by analyzing them and the challenges which are related to water security like the population growth, the decrease in the individual share of water and the increase in the demand on food to satisfy the need of the Arab World inhabitants.

### 1.3. The Objectives of the Study

After showing the study problem, the study aims to achieve the following objectives:

- Recognizing the security, economic and political dimensions of the Arab water and food security, knowing the political strategies to achieve them in order to help decision makers to seek substitutes that makes it easier for them to deal with both sectors of water and food.
- To focus the strategies of achieving the Arab water and food security based on scientific studies to get to the ongoing local development through cooperative relations between the Arab countries.

### 1.4. Variables

- The independent variable (political and economic dimensions).
- The dependent variable (Food security).

### 1.5. The Study Hypothesis

This study is based on one main hypothesis: There is a connection and relationship between the political and the economic dimensions of the Arab water security and the Arab food security.

### 1.6. Previous Studies

This is a briefing of the most important studies:

The study of Salameh (2001) titled: (The Problem of Water in The Arab World: The odds of conflict and Compromise)<sup>(1)</sup>. The study diagnosed the state of water and its crisis in the Arab World especially with the odds of conflict and weakness of compromise opportunities between the countries that share the same water resources. And showing the weak negotiation attitude of some Arab countries towards the huge water projects done by non-Arab countries holding water resources or rivers. The study focused on the Ethiopian projects and shed light on the dangers of their projects on the African Arab countries especially on the Nile and other rivers. Most importantly the reservoirs and dams. The study also showed with no doubt, the effect of the Arab food security as a reflection of water security where its problems have been growing bigger and bigger on the African Arab side because of those projects. The study showed that there would be no solution but to keep on negotiating and compromising with a strong negotiation attitude.

The Shouk's study (2010) titled: (The Arab Food Subordination and the Arab National Security: Reasons and Impacts)<sup>(2)</sup>. The study aimed to clarify the concept of the Arab food subordination and the concept of Arab national security and to show the elements that lead to face the food subordination. The study also talked about food in the Arab World, the reasons of food subordination and the effect on the Arab national security.

The study of Al-Qari (2000) titled: (The Arab Water Security: The Cause and Dimensions)<sup>(3)</sup>. The study dealt with the water crisis and its problems exclusively and racially to gather the efforts to provide sweet water and to establish a unified Arab stand about it in the concerned international organizations to discuss the lack of water and the conflict about it in many places in the Arab World. The study showed many angles like: Arab water in the international law, the regional and international challenges, Arab water and Turkish projects, Arab water and the Arab-Israeli conflict, water and the Arab economic strategies and the ecological challenges.

By going through previous studies we could see that they focused on the water crisis from many sides like, conflicts and their effects on the national security. From another side, some studies talked about food crisis and its effects. This study is going to link the two sides by studying the effects of political and economic dimensions on the Arab food security.

## 2. The Methodology of the Study

Based on the nature of the study and the research problem, which we have to answer its questions, this study is going to use the functional methodology through political geography.

If we realize that food security of the people of the Arab region will become the main obsession of the Arab governments in this century, we will realize the meaning of what the vital strategic role of using the projects of water in solving the dilemma. The file of major water projects in the Arab World especially in the Middle East carries conflict within the interests. These might cause an essential reason of multi conflicts which will appear when an international or regional conference is held to establish the rules of the international and regional order. In addition of that, the effect of globalization as a cosmic phenomenon that deals with the world as a north and south which is a dominant power in dismantling the familiar formulas and rearranging them into unfamiliar ones. The Arab World now is under subordination, violence, cohabitation, laziness, backwardness and dead lock politically, economic, culturally and socially. The Arabs, as a

(1) Salamah, Ramzy (2001). The Problem of Water in The Arab World: The odds of conflict and Compromise, Alexandria: Dar A-Maaref.

(2) Al-Shouk, Rabab Ali Jamil Amin (2010). The Arab Food Subordination and the Arab National Security: Reasons and Impacts. MA Thesis, Middle East University, Amman, Jordan.

(3) Al-Qari, Ahmed (2000). The Arab Water Security: The Cause and Dimensions. Al-Ahram Newspaper, Year 124, Issue 41346, Feb. 18, 2000.

nation must double their security, economic, developmental, and political efforts as they face Israel which dominates most of the water resources that affect the Arab national security.

This study discusses the effects of political, economic dimensions and the security dimension on the Arab food security.

### 2.1. Water Security Dimension

A few years ago, the connecting between the water and food dimensions started after realizing the importance of using the water wealth rationalization in closing the escalating food gap<sup>(4)</sup>. Naturally, it is related to the Arab national water security.

The Water Security is related to the lack of water and the conflicts on water between the Arab countries and the strategic plans. The security dimension must control the Arab movements in this field. The future is refilling the water resources and rationalizing its usage<sup>(5)</sup>.

### 2.2. The State of Food Security

The issue of the food security which the Arab society suffers has become a never ending daily talk no matter how it is discussed. Despite the issue of food is a form of a relationship between demand and order, as we have mentioned, or between production and consuming, it has multiple dimensions. First of all, the security element which led to the use of the term food security because of tight connection between food and security. Food is one of the basic needs of the human being, which includes food, housing and health that he cannot spare or have patience on hunger. The country which cannot provide food to its people from local resources becomes helpless to face the pressure or challenges which endangers its security, freedom and independence<sup>(6)</sup>.

According to the economy report 2011, the contribution of agricultural production in the whole local production of the Arab countries between 1995-2010 was as follows<sup>(7)</sup>:

Year	Add Value of Arab Agricultural Production (Billion Dollar)	The Contribution of Add Value to the Whole Production of Arab Countries	
		All sectors	Excluding the add Value of Extraction Industries
1995	45	9.5	12
2000	56	7.8	12
2005	70	6.1	10
2010	125	6.0	11

Table 1: The Contribution of Agriculture Production in the Whole Local Production in the Arab Countries (1995-2010)

Source: The Arab Organization for Agriculture Development (2011)  
The Arab Unified Economical Report/ Agriculture and Fish Sector

By the table above we can notice:

- The increase deficit in the Arab Agricultural trade balance<sup>(8)</sup>.
- The increasing dependency on foreign resource regarding food<sup>(9)</sup>.
- The phenomena of the increase on food prices<sup>(10)</sup>.

### 2.3. The Political Dimension and Its Impact on Arab Food Security

There is a great importance for the political dimension, Arab water and food security. The Arab countries have to make and extra effort to provide security through diplomatic channels which lead to the conditions of obtaining water or at least, not to pollute it. We will concentrate on conflicts and their effects on water and political security challenges.

### 2.4. Conflicts and Their Impact on Water

Politics is mixed with economy and the social condition. The economic conditions also, in the first place, depend on the political conditions, negatively or positively, between countries.

There is a set of challenges that face the Arab countries like facing the problem resulting from water conflicts especially international rivers and how to benefit from the basin of on river. Also showing the negative effects of water shortage.

There are three main major problems that made the extreme usage of water. This led to rival and conflict to possess the resources of water or the largest amount of it to use or store. The problems are<sup>(11)</sup>:

(4) Al-Abullah, Hasan (1992). Arab Water Security, Strategic, Research and Documentation Centre, Beirut, p.29.

(5) Ibid., p.29.

(6) Al-Haffar, NehayatYasin (1992). The Issue of Food and Food Security in the Arab World, (1<sup>st</sup>ed.). Damascus: Dar Al-Maajem, p.37.

(7) Al-Jamily, Hameed (2013). Globalization and Arab Food Dilemma. The 9<sup>th</sup> Scientific Conference, Muta University, Kerak, Jordan, p.6.

(8) Al-Jamily, op.cit., p.6.

(9) Al-Najafi, Salem Tawfiq (1998). Arab Food Security: the Economic Implications and Possible Changes (The Focus on Grains). (1<sup>st</sup>ed.). Abu Dhabi: The Emarati Centre for Research, p.35.

(10) Qabil, Mai (2008). The Features of Global Food Crisis. International Politic Magazine, 43(173), 200, Cairo.

(11) Al-Tamimi, AbdelkhaleqKhalaf (1999). Arab Water (Challenge and Response). (1<sup>st</sup>ed.). Al-Wehdah Al-Arabiya Research Centre, Beirut, p.17-18.

- The large and rapid increase in the population (Demographic Change).
- The expanding in agriculture to provide food in order to face the population increase.
- Managing water affairs.

The pressure of the increase in the population and the need to provide food by increasing the agricultural lands, the industrial development and the urban growth. All that needs more water and to double the amounts every now and then. Because the amount of water is limited, some of the countries that have the potentials and power will try to dominate the water resources in the region to take the amounts needed and store for the future. And then, to use water as a political weapon to force the other powers in the region and achieving strategic targets<sup>(12)</sup>.

### 2.5. The Negative Political Effect of Water Shortage

The Arab strategy to achieve water security which governments, that Arab regional organizations and the Arab water council took part in preparing has faced many challenges including political ones. These studies has concluded that most of the Arab countries would be under the line of water poverty by (2025) for many reasons<sup>(13)</sup>: Population growth, the increase in the standards of living, expectations of the weather changes, the abuse of using water, the absence of suitable technology, not using the kinds of agricultural products which have high international economic value to achieve water security, the increase in the pollution rate including hard and liquid wastes, mining waste dumpsters, liquid salt waste, agricultural materials and so on<sup>(14)</sup>.

### 2.6. Some of the Important Political and Security Challenges

#### 2.6.1. The Political Dimensions Affecting the Arab Food Security

The Arab food security is largely connected to the state of the Arab Nation especially after the Arab Spring which has started at the end of 2010 and the beginning of 2011. The differences and conflicts between the Arab countries, the absence of the Arab will and the differences of the ruling Arab regimes have negative effects on food and water security<sup>(15)</sup>.

There are many political dimensions which affect the Arab food security negatively. In addition to what was mentioned earlier, some of them:

- The political and economic subordination to foreign powers which affects the joint Arab cooperation (especially Arab water and food security)<sup>(16)</sup>.
- The Arab food security is a strategic goal. The Arab countries have to work hard to use political potentials and the economic powers<sup>(17)</sup>.
- The decrease in producing the most important food goods, the increase on demand and high prices beyond the consumer power caused political unrests in some countries in the world<sup>(18)</sup>.
- Foreign political pressure<sup>(19)</sup>.
- The absence of the functional and collective political will of the Arab Nation as a reaction to what Arabs, countries and people, suffer of rupture, boycott and quarrels because of political, ideological, and religious differences.
- Ideological conflicts between the Arab ruling regimes.

Lastly, the policy of the World Trade Organization (WTO) aiming to free the trade of agricultural products caused major economic problems to the developing countries' economies (including Arab). This was reflected in the increase of foreign debt and food subordination<sup>(20)</sup>. In addition, it led to cancelling the support which was provided by some developed countries to agricultural products. This was followed by undesirable results in the economies of developing countries and resulted as an increase in the imports costs of agricultural products. In addition, there was a great decrease in the value of fees which was a large percentage of the incomes of developing countries. That led to a decrease in the ability of the developing agricultural goods to compete with developed ones. That had had an extremely great role in leading the developing and Arabic food security to a low level<sup>(21)</sup>.

#### 2.6.2. The Political Difficulties Affecting the Arab Food Security

There are some foreign political difficulties that negatively affect the Arab food security like using food as a political weapon to pressure the Arab regimes or interfere in their internal affairs to serve foreign goals and dictate terms or pass private agendas<sup>(22)</sup>. Also, there is the trading of political decisions especially in Palestinian Authority territories which include the West Bank and Gaza, particularly Gaza. When Hamas was chosen in democratic elections, as witnessed

<sup>(12)</sup> Ibid, p.20.

<sup>(13)</sup> Al-Miqdad, Mohd Ahmed (2013).The Role of International and Governmental Politics to Enforce the Arab Food Security.Nayef Arab University of Security Science, Reyadh, Saudi Arabia, May 6-8, p.11.

<sup>(14)</sup> Ministry of Water and Irrigation (2008).Jordan Water Strategy and Politics, Amman, p.23.

<sup>(15)</sup> Al-Miqdad, op.cit., p.11.

<sup>(16)</sup> SerajEldin, op.cit., p286.

<sup>(17)</sup> Al-Hazaymeh, Moh, Al-Azzam, Abdelmajeed (2009).The Political Effects of the Arab Food Subordination.AI-Nahda Journal, 10(3), 4, Cairo.

<sup>(18)</sup> Abdillatif, Hanan (2008).Arabs and the Challenges of Global Food Crisis.International Politics Journal.43(173), 216, Cairo.

<sup>(19)</sup> Al-Khazaleh, Raed Mohd (2001).The Food Security in Islamic Economy Perspective.Unpublished MA Thesis, Yarmouk University, Irbid, Jordan, p.14.

<sup>(20)</sup> Al-Abd, Fadwa Ali (2005).WTO Impact in Achieving Appropriate Food Security Levels in Low-income Countries.Unpublished MA thesis, Mosel Uni., Iraq, p.47.

<sup>(21)</sup> Al-Abd, op.cit., p.47.

<sup>(22)</sup> Basheer, Al-Sadey (2009).The Challenges of Arab Food Security. (1<sup>st</sup>ed.). The Arab Dar for Science (Publishers, Madboli Bookstore, Cairo, and Jazara Centre for Research, Doha, p.23.

by international and regional observers and formed the government, the Western countries especially USA sanctioned Hamas with a food siege in addition to a political siege to create a state of unrest between the citizens to force Hamas to quit politics and recognize Israel. Also, to force Hamas to submit to western, Zionist and American terms<sup>(23)</sup>.

One of the political obstacles that affect the case of food security is the political reformation issues and the continuation of democratic transformation in some Arab countries and the state of Arab human rights. Also, the confront with extreme movements and the domestic violence in Arab countries after the revolutions of the Arab Spring<sup>(24)</sup>.

### 2.6.3. The Economy Dimension and Water Security Effect on Arab Food Security

The economy dimensions of water in the Arab world is no less than the other dimensions because they are all linked to each other. Every side completes the other. To face the ambitions of other countries, we have to build an Arab strategy based on the best way of using water in order to build a comprehensive economy that brings benefits to the Arab national security.

### 2.6.4. Economic Dimension of Water

The cause of water crisis in the Arab World, as assured by all evidence, is the Zionist State efforts to use water as a political weapon to solve its conflicts with the Arab countries by force and not technically. Its not by chance that Israeli engineers and technicians are supervising the projects of irrigation and dams in Ethiopia on the Blue Nile. First, economy obstacles to prevent achieving water Arab security. Second, future economic strategy.

Economic obstacles preventing the Achieving of Arab water security:

- The Arab-Zionist conflict.
- Water shortage.

The Arab water shortage which lend to economy problems and prevent achieving food security is linked to some factors<sup>(25)</sup>:

- The limited water resources and low share of water for the individual which lead to a water gab because the share of the individual is an evidence of the stabled water security condition in the Arab region.
- The lack of suitable and necessary water to expand in agriculture represents an obstacle despite the available water potentials from modern irrigation systems.
- The lack of capital funds for ongoing water resources development and the ideal use of technology in consuming water in the Arab countries.

By what we have mentioned, there are two main threats to the Arab water security which affect the Arab food security:

- Internal threat which lies in population increase, urbanization, the high cost of living, the abuse of using water and pollution.
- External threat which lies in the projects and Zionist State ambition which will be done near the neighboring countries of water like the relationship between Ethiopia and Israel.
- The quality and suitability of water<sup>(26)</sup>.
- Arab water policies.

### 2.7. Future Economy Strategy

To face the regional ambitions outside the |Arab World, like the Zionist, Turkish, |Ethiopian, and other ambitions, the |Arab security can be achieved through food security, economic, and strategic military security, we can see the following factors:

- Putting a tight water policy where we can establish priorities to distribute the available water resources and self-sufficiency<sup>(27)</sup>.
- Developing the available resources taking in consideration the integration between the surface water resources and the underground resources<sup>(28)</sup>.
- Improving the management, protection, and maintaining water resources through developing the ruling legislation rule of confident use of irrigation water<sup>(29)</sup>.
- Dealing with and reducing the risks that result from the water crisis. This can be done by laws and rules that cannot be neglected in the field of water<sup>(30)</sup>.
- Other procedures connected to water economy.
- Developing and protecting agricultural lands.
- Regional cooperation between research centers and scientific applied companies. Inviting regional and international organizations to do their duties in evaluating fair distribution in common international water to reach agreements, establish an Arab fund to transform water technology and keep good investment of it<sup>(31)</sup>.

(23) Al-Hazaymeh and Azzam, op.cit., p.23.

(24) Horizons of the Arab Strategy to Face Challenges and Threats. www.mesj.com/new/ArticleDetails/29/1/2011/12:00

(25) Hujrat, Renada (2008).Water Arab Security from eh Nile to the Euphrates. MA Thesis, Jordan Univ., Amman, Jordan, p.18-19.

(26) Al-Khazaleh, op.cit., p.10.

(27) Al-Makhadmeh (2003).Arab Water Security between Needs and |Demands, (1<sup>st</sup>ed.). Damascus: Dar Elfekr, p.381.

(28) Basheer, op.cit., p.144-145.

(29) Ibid.,p.143-144.

(30) Hujrat, op.cit., p.67-68.

There is a strategy published by the International Bank to run the water resources that calls to plan, fund and manage the water resources in the Middle East and North Africa. It calls to<sup>(32)</sup>:

- Helping countries to put plans about water focusing on rivers basins planning, establishing water markets, using social and ecological divisions, partnership rules to ensure the continuation of water programs.
- Hiring field, specialized, concerned employees in the region, mobilizing local expertise to provide a complete range of necessary services.
- Cooperating with concerned countries to put integral plans to train employees and concerned supervisor with water affairs including putting a coordinated program to hold seminars, nationally and regionally.
- Encouraging the awareness in the regional programs and issues of water. Taking part in the groups coordinating the communications with the funding countries, participating in the water conferences in the Middle East and North Africa.
- Participating with the funding countries to provide funds for projects and early programs.

### 2.8. The Variables of Economic Strategic Dimension

In the early nineties of the past century, many changes, political and economic took place at the same time. The most important were, the fall of the Soviet Union, the domination of liberal ideology concerned with the free economy and capitalism, and the fall of the social ideology. This made the Arab countries change their policies to free economy policy and to merge in the global markets<sup>(33)</sup>.

By the beginning of the 21<sup>st</sup> century the Arab countries had completely merged with the global markets. The change in their markets had been connected with the global market especially when the global crisis of 2008 started. In the second decade of this century, the region witnessed some changes on the level of Arab countries and regimes and their policies. The economic factor of unemployment, poverty and subordination was of the first reasons that led to the rise of Arab Spring revolutions in the area against the regimes policies. One of the cases that the Arab Nation confront in these domestic and international developments is the case of food security with all the risks and dangers<sup>(34)</sup>.

In these international changes and Arab food security, comes the effect of these changes which has a major role in achieving proper levels of Arab food security:

- Globalization and the freedom of the world economy.
- The policies of World Trade Organization (WTO).
- The system of market protection and their procedures.
- The increase competition among international economy cartels.

The strategy to enforce food security demands an ongoing Arab agricultural development strategy until 2025.

### 3. Conclusion

After the monitoring and analysis according to the methodology used in this study in discussing the hypotheses, we came to a number of conclusions that answer the questions:

- The Arab World suffers the abuse of using water resources which leads to waste large amounts of water. This decreases the offers of water despite its scarcity which expedites the coming water crisis.
- The Arab food gap is economic as a result of the deterioration of the water Arab security which is expected to become larger with the continuation of the shortage of water severity which affects the achieving the Arab economy security.
- The water is an agriculture obstacle in the field of Arab support to build dams on rivers and valleys. The area of the irrigated land is 9 million hectares, about 70% of the agricultural production.
- The future of the Arab region is connected with execution of major economic projects in the region to face the expected water crisis. Projects like transferring water from a place to another inside the same country, from a country to another or from Antarctica to the countries in the region.
- Political conflict on water might rise the Arab region because of the shared water resources and the lack of respecting the other countries' right by some countries sharing the same resources.
- The absence of enforcing the international laws to use the shared water resources will lead to deepen the expected security and political conflict and to make it more severe. The conflict on shared underground water in the Arab region will rise because of the drain of it by some Arab countries, Israel and Turkey on the expense of other Arab countries sharing the resources.
- The Israeli attempts to breach the security of some Arab countries like Egypt and Sudan by sieging the upper basin of the Nile according to its African strategy with the countries on the Nile like Ethiopia to force Egypt to accept providing Israel with water. That is done by helping Ethiopia in building dam projects on the Blue Nile which will result in decreasing the share of Egypt and Sudan of the water.
- The Arab water security is considered a strategic demand facing economic, political, legal and technical challenges. This needs to adopt an Arab water strategy on the level of the Arab World and the region (The group

<sup>(31)</sup> Al-Makhadmeh, op.cit., p.281.

<sup>(32)</sup> Al-Makhadmeh, op.cit., p.287-288.

<sup>(33)</sup> [www.ahewar.org/debat/show/art/2/2/2014/11:03](http://www.ahewar.org/debat/show/art/2/2/2014/11:03).

<sup>(34)</sup> [www.ahewar.org/debat/show/art/2/2/2014/11:05](http://www.ahewar.org/debat/show/art/2/2/2014/11:05).

that share the same basin). And also on the level of each state instead of adopting reactions to the behaviors of some neighboring countries, like what is happening now.

- The size and value of the food gap is expanding especially in grain production. Also the percentage of self-sufficiency of grain is decreasing which results in more dependency on the global market to provide food needs and more economic burdens on the balance of payments in most Arab countries.
- Despite the fact that agriculture resources represent an important part in the economy of Arab countries especially non-oil producing, the share of the agriculture sector of the whole investments does not match with the size of the agricultural resources. This led the Arab agriculture production to represent a tiny relative percentage in the whole local production.

#### 4. Recommendations

- Increasing the studies about the Arab water situation and its potentials (supply) and water needs (demands). Finding solutions to close the gap between the two sides.
- Setting complete plans for water and then to food in order to organize the process of water production and consuming on a global, national and local levels.
- Working on achieving balance between the targets of water security and food security so that the second target does not overwhelm the first. Taking into consideration the interests of the present and future generations.
- Activating needed laws to reduce water waste and pollution and putting fines on those who break these laws.
- Finding a unified Arab strategy based on cooperation and to stop using the language of power. The cooperation has to be based on mutual benefit of neighboring countries. Also, real knowing of the needs of the countries of water and the best usage of it.
- Giving priority to the subject of water resources and saving it when setting a security strategy. This must be top priority because of the shortage of traditional water resources.
- Setting a unified Arab strategy towards Israel and Turkey and putting an end to the Israeli and Turkish domination on Arab water wealth.
- Establish an independent Arab authority to put plans of water affairs and to coordinate the Arab water project and researches. Also, to organize seminars, scientific lectures and workshops to develop studies and applications to encourage Arab cooperation in this field.
- Reforming the agricultural sector in some Arab countries through restructuring it and approving the monetary incomes in the frame of relative prices. Putting a deadline to reduce the interference in the agricultural market and to increase the role of pricing in the agricultural resources.
- Moving toward the principle of relative advantage when producing food and to take care of competitive competency of shared product in order to increase the size of food supplies.
- The necessity of coordination between the Arab countries, bilaterally, regionally, and collectively in regards of food policies and developmental plans, especially with food industries to create an integral production and competitive as it is now.
- Establishing a data bank of food industries spread in the Arab countries in addition to primary industries and production material to facilitate the commercial production.
- Applying agricultural material policies taking in consideration the lack of some agricultural resources (water resources) in some Arab countries and the abundance of other agriculture resources like labors in other Arab countries. Activating the economic and shared Arab relationships in order to reach some harmony in the mentioned agricultural productions.
- Approving a storage strategy on two levels. The first on the country level to achieve the local food balance and the second on national level to face the food shocks that might take place in the global food markets. Establishing an Arab fund to face emergencies of Arab agriculture like draught which might affect some Arab regions.

Working on reducing the food gap by using the following methods:

- Increasing the productivity by using modern technology, seeds and fertilizers.
- Cooperating with Arab countries that have fund capital to provide support to fertile lands as in Sudan, Somalia and Syria. The Saudi experience in producing grains using modern technology is the best proof.
- Trying to change the consuming patterns because grain consuming is the dominant pattern in the Arab region. Also working on focusing on other consumer habits like beans and potatoes which have similar nutrition as grains.
- Expanding the irrigated agricultural lands because the hectare there is beyond other lands. This is done by building modern irrigation systems, dams, channels, and reservoirs to reduce the amount of lost water. Exploring the water basins and the exploring in building reservoirs on rivers. Also building stations to produce sweat water depending on solar energy and developing the Arab regional cooperation, in the field of benefiting from the available water resources.

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