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THE WATER FUTURE WHEN EUPHRATES RIVER LEVEL DECREASES SHARPLY

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Abstract:
Natural factors, especially the global warming that the region is witnessing, have affected the decrease in the discharge of water from the Euphrates River through increased evaporation in large quantities. The lack of precipitation in recent years also affected the supply of the river in the study area with sufficient amounts of water. The study showed that the policies adopted by the countries of the Upper Euphrates contributed significantly to the decrease in the levels of the river's water through the establishment of dams and reservoirs. The study showed that it was the Turkish projects that mainly affected the decrease in the river water levels. The study also concluded that excessive, irresponsible use of water by citizens contributed to the depletion of river water in a significant way.

Keywords: water future, Euphrates River, decreases sharply.

Introduction:

The importance of water for anyone, as water tops the list of basic human needs. There was no life or food without water. The issue of water in Iraq occupies great importance, especially the Euphrates River, which originates from the lands of neighboring countries with the tributaries that flow into it and their sources are located outside Iraq, which makes Iraq vulnerable to the threat of neighboring countries by using water as an element of power available to them, because of the importance of water for the perpetuation of life, the continuation of its cultural existence, and its development in various health, agricultural, industrial, and other aspects, therefore, water has become a complex and multi-faceted issue, including political, economic, legal, social and environmental aspects. Iraq also falls within the arid and semi-arid regions with a severe shortage of water falling on it, the factors of desertification that are sweeping large areas of Iraq, creates a critical situation for the quantities of available water and severely reduces the population's access to safe water, a careful look at the water situation in Iraq, Turkey and Syria in light of the increasing need for water shows the imminent dangers, which surrounds this important resource and the necessary element for the survival of humans and animals, if the current pattern of water consumption in these countries continues, the irreversible deficit in the water budget of these countries will intensify and the quality of water there will deteriorate, creates intense competition for safe water sources and may lead to regional disagreements and conflicts.

Theoretical framework

First: Research problem

The research problem can be formulated in the form of points

1. What is the future of the Euphrates River water in light of the decreasing river water levels?
2. To what extent do natural factors influence the decrease in river levels in Muthanna Governorate?

3. What are the human causes affecting the decrease in river levels in Muthanna Governorate?

Second: Research hypothesis

1. The research hypothesis is that there is a group of geographical factors that affect the future of the Euphrates River water and its exploitation
2. Natural factors affect the water of the Euphrates River in Muthanna Governorate quantitatively and qualitatively, the most important of which are global warming and lack of precipitation.
3. Human factors affect the water of the Euphrates River in Muthanna Governorate quantitatively and qualitatively, the most important of which are the water policies of the Upper Euphrates countries and excessive use of water.

Third: The importance of research

The importance of the research is that it addresses a contemporary problem represented by the water shortage that all countries suffer from, as the study area suffers from in particular, and knowing the natural and human causes that led to the decrease in water levels downstream of the Euphrates River and trying to address it according to the available capabilities.

Fourth: Research objectives

Research objectives can be formulated in the form of points

1. Knowing the future of the Euphrates River water in light of the sharp decrease in its water.
2. A geographical analysis of natural factors, including global warming and decreased precipitation, and an explanation of the impact of each of them on the decrease in river water levels.
3. A geographical analysis of the impact of human factors and a statement of their impact on the decrease in river water.

Fifth: Research limitations

1. Spatial boundaries: It includes the spatial boundaries of the course of the Euphrates River in Al-Muthanna Governorate, located between two latitudes (31,42-29,05◦) to the north, and between two longitudes (46,32-43,50◦) to the east. It is bordered to the north by Al-Qadisiyah Governorate, to the northeast by Dhi Qar Governorate, to the south-east by Basra Governorate, to the northwest by Najaf Governorate, and to the south and southwest it is bordered by the Kingdom of Saudi Arabia, which includes five districts (Samawah, Rumaitha, Al-Khader, Al-Salman, and Al-Warka).

2. Time limits: represented by the period between the years (2015-2021).

First: Natural Causes

1. Global warming:

The problem of global warming has worsened in the world in the recent period as a result of air pollution and an imbalance in the proportions of the components of the gaseous atmosphere in the upper layers, which led to a rise in the temperature of the Earth, which led to weather changes in pressures and then the movement of winds, which led to more drought and global warming. The problem will increase if its causes continue, and the world will witness climate changes that will have negative and major effects on the tropical and subtropical latitudes and the warm temperate regions. In these regions the sources of the Euphrates River and its basin are located. These regions

will witness more droughts and scarcity and fluctuation of rain. Perhaps the changes are clear in recent years as they have continued. Waves of drought, scarcity of rain, long summer months, and intense heat waves, especially in recent years (1), the drainage of the tributaries of the Euphrates River Basin depends mainly on winter rains and the melting of snow from Turkish rains. The drainage is also affected by the evaporation process in Syria and Iraq, and therefore climatic conditions are the controlling factors. Which determines the amount of water available in the basin, and although the Euphrates Basin is located in a humid transitional zone in Turkey and semi-arid in Syria and Iraq, the headwaters of the tributaries enjoy a subtropical Mediterranean climate with cold, humid winters and hot, dry summers.

The average monthly temperature over the river basin ranges between (6) degrees Celsius in January to (34) degrees Celsius in July (2), and thermal changes have an impact on the decrease in the amount of rain in the Euphrates Basin and the increase in the crops' need for water due to increased amounts of evaporation and long periods of time. Growing season 0: An increase in temperature by 5°C in the headwaters area of the Euphrates River will lead to a reduction in the river's discharge by (40%), and a decrease in rainfall by 25% will lead to a decrease in the river's discharge by 42% (3), and on the other hand Climate changes affect water needs, as the private water requirement for irrigation will increase globally by 20% by the year 2080 due to increased evaporation and a longer growing season in the context of global climate change(4). In the study area, temperatures rise, especially in the summer months. Sometimes it reaches (45°C), and thus this rise in temperature leads to an increase in water consumption. These increased uses of river water generate high pressures on the available water, as well as an increase in the amounts of evaporation from the river and a decrease in the amounts of water discharged into the river course.

2. Lack of precipitation:

Surface water is the main source of water in the study area, represented by the water of the Euphrates and sub Rivers. The importance of other sources decreases when compared to them, as the amount of falling water decreases and becomes uneconomical and causes the deterioration of agriculture as a result of the deterioration in the quality of groundwater that feeds the river due to the high percentage of salt in it (5) The study of the hydrology of the Euphrates River - Muthanna Governorate section is nothing but a reflection of the climatic elements and phenomena prevailing in that region, and clarifying this fact represents the great connection between applied hydrology and climatology on the basis that the hydrological river system in the study area that it now forms is nothing but a reflection of climate action. And its elements over time (6), as the surface watercourses in the study area suffer from fluctuations in the amount of their flowing water, for several reasons, including what is related to snowfall and precipitation in neighboring countries and the amount of water received from them, as well as the lack of the study area's contribution to increasing the discharge of the river and its tributaries. As a result of its dry climate, represented by low precipitation, high temperatures, low relative humidity, high amounts of evaporation, and other factors (7).

The general characteristic of rainfall for the study station is the lack of rainfall because it is located within a dry desert climate, and therefore its lack of actual contribution to feeding the Euphrates

River. Thus, the actual rainfall within the two countries (primarily Turkey and Syria partially), which contributes about 90% of it, while it amounted to The actual recharge rate in Iraq is about 10%, and this rate is currently estimated in the study area according to the areas of the water basins at about 5% (8), but if any change occurs in the rainfall system within the basin of the study area, it will lead to a significant increase in the actual recharge rate (9). The most recent example of this is the floods that struck the Tigris Basin from northern to southern Iraq in the period from February to April in 2013, as a simple change in the rainfall regime for a limited number of days led to the drowning of hundreds of villages and the destruction of hundreds of thousands of dunums of agricultural land. The disaster forced the Iraqi government to declare that large areas of the Tigris River Basin in Iraq were disaster areas.

As for the actual duration of snowfall, it begins in the Euphrates Basin in Turkey from the beginning of December until the end of February, as snow covers the upper parts of the basin whose altitude exceeds (1000 m) (10). as the snow begins to melt during the months of April and May, due to high temperatures. Spring rains also help to dissolve it, which sometimes leads to spring floods, which constitute a relatively important factor in changing the water flow system and then the river's drainage over the course of several years (11).

It is noted that Iraq in general and the study area in particular do not contribute to the snow supply of the Euphrates River, nor does it have any significant percentage due to the dry climate prevailing there.

Second: Human Causes

1. Policies of the Riparian Countries: The Policies of The Riparian Countries

A. Turkey:

Public international law classifies rivers into two types: The first type is represented by national rivers, which are those rivers (which have a water course located from its source to its mouth in the territory of one country, such as the Barada River in Syria, the Bared River in Lebanon, the Seine River in France, and the Thames River in England) (12) The second type is represented by international rivers, which are defined as (those rivers whose basins pass between the regions of more than one country, or those that separate the regions of two countries) (13), and according to this definition, the Euphrates River is one of the international rivers 0, but the distinction was not made between the national river and the international river It was known or used before the emergence of the concept of sovereignty, and the Euphrates River did not constitute any significant problem before the first Treaty of Lausanne of 1920(14).

Because Iraq fell under Ottoman rule, and the river from its source to its mouth was under the authority of the Ottoman Empire, and this agreement was one of the agreements and treaties concluded between France and Britain, as the two colonial powers of Syria and Iraq (because they were part of the dissolved Ottoman Empire). This treaty stipulated the establishment of a joint committee to supervise Projects established on the Euphrates River, or which are intended to be established, and under the slogan (reconciliation and acquired rights: between the concerned countries for the purpose of establishing a water system related to opening canals and irrigation projects. The parties agreed that in the event of disagreement between the three countries, the

matter will be referred to an arbitration committee(15), then The Ankara Agreement came on October 20, 1921, between Turkey and France (the Mandatory Power over Syria at the time), and on July 24, 1923, Syria signed a second Treaty of Lausanne, according to which it agreed to develop a new layout for the Syrian-Turkish border, settle the issue of the water dispute that might occur between Turkey, Syria, and Iraq, and organize the exploitation process. From the water of the Tigris and Euphrates rivers, whether for irrigation purposes or to generate electrical energy. On May 30, 1926, a conference was held between the government of the French Mandate for Syria on the one hand and Turkey on the other hand. The conference participants discussed the issues of providing drinking water and irrigation in the Euphrates River Basin (16), and it addressed The Iraqi-Turkish treaty concluded on March 29, 1946, on the subject of the Tigris and Euphrates rivers and how to regulate the use of water between them. Turkey pledged to provide Iraq with maps and information about the dams and reservoirs established and that will be established in the future on the Euphrates River in line with the interests of the two countries (Turkey and Iraq). Also, the protocol attached to this treaty It stipulates Turkey's recognition of Iraq's right to benefit from the Tigris and Euphrates rivers. In 1972, a protocol was signed that addresses the issue of shared water and the method of storing and disposing of water in Turkish territory, especially the Keban Dam and Reservoir, which reduced much of the water of the Euphrates River in Turkey. In 1982, it was organized Syria joined this protocol, as it was agreed on the necessity of reaching a way to fairly distribute the amount of water in the three countries. However, Turkey disavowed the true content of the protocol and completely ignored the rights of Syria and Iraq, despite the good neighborly relations that prevailed between them. In 1990, an agreement was reached between Syria and Iraq. And Iraq has their respective shares of water, so Iraq’s share has become 58% of the water received at the Syrian-Iraqi border, while Syria’s share is 42% (17). Turkey continued to exceed the shares of Syria and Iraq from the waters of the Euphrates River after moving forward with the GAP project without consulting the two countries about it, considering The Turkish vision for this river is that it is a purely Turkish river, and that Turkey has the right to control its waters as it wishes without referring to any country. It is similar to the oil found in Iraq, for example, which it has the right to invest according to the requirements of the national interest and in accordance with considerations of sovereignty, as the GAP project, which is represented by a series of dams. And the reservoirs whose storage capacity exceeds the total discharges of the Euphrates River for three years, the total water stored in it amounts to about (90) billion cubic meters (18). Based on this, and despite the distinguished historical, social and commercial relations between Iraq and Turkey, water disputes are still a matter of controversy and Iraq has not reached a satisfactory settlement that guarantees its rights. Water acquired with Turkey 0 The flow of water from the Euphrates River decreased after the completion of the bulk of the GAP project facilities from 18 billion cubic meters annually to 9 billion cubic meters annually (after the 1987 agreement, which was called the 500 cubic meters agreement with Turkey), and Iraq’s actual need is estimated at 13 billion cubic meters annually of this river’s water. Which led to damage to agricultural development plans, especially in the successive waves of drought that swept the region in recent years (19).

The Euphrates River is characterized by being a flood river with irregular flow. About half of its annual flow flows during the months of April-May, carrying with it large amounts of silt amounting to approximately 100 million tons(20). This river in Turkey is fed by rainwater and snow. The eighties and nineties of the twentieth century were no different. The beginning of the current century is different from the previous stages, as things remained as they were. Despite the many talks between Turkey, Syria and Iraq about dividing the waters of the Euphrates River, they did not reach the establishment of stable foundations acceptable to the three parties. Turkey continued its shady water policy and its attempt to please the Zionist entity. And attracting the basin countries and dragging them into the arena of bargaining. The best example of this is the peace pipeline project that is supposed to transport the waters of the Euphrates River to Israel through pipes across the Mediterranean Sea (21).

B. Syria:

The Iraqi-Syrian water problems are limited and largely related to the share provided to them by Turkey, which is clear from the water discussions between the three countries, as Iraq and Syria have the same perceptions. On September 23, 1962, an Iraqi delegation arrived in Damascus to hold talks about the waters of the Euphrates River, and the result of the talks was The two sides agreed to submit recommendations and form committees concerned with water cooperation affairs between Syria and Iraq. After three months of Iraqi-Syrian talks, a Syrian delegation went to Turkey to hold discussions. However, these discussions did not go beyond discussing the uses of the Euphrates River water, raising recommendations and proposals, and exchanging technical information, while Iraq and Syria were exchanging Visits and discussions: Turkey was continuing to build the Keban Dam, and the Turkish government contented itself with informing the Syrian delegation that visited Ankara on September 14, 1964, that Turkey did not intend to benefit from the natural drainage of the waters of the Euphrates River, but rather that it would benefit from water that exceeded the natural drainage. In 1966 and 1967, the two Syrian delegations met. And the Iraqi is in Baghdad to discuss river affairs, but those meetings did not produce positive results(22). Therefore, the rest of the years of the twentieth century and the beginning of the current century did not differ from the previous stages, as things remained as they were, despite the long negotiations between Iraq and Syria with Turkey about sharing the river's waters. Euphrates, but it did not reach the establishment of stable foundations that are practically acceptable to everyone. The continued decline of the water supply of the Euphrates River coming to Iraq will have a significant negative impact on the overall hydrological characteristics of the river's water and will reduce the per capita share of water and increase pressure on it and increase the concentration of pollutants for various human activities that It is thrown into the river without treatment or with very weak treatment, especially since the pollutants are thrown into the river by Syria to increase the amount of water passing to Iraq to reach the specified shares, which is an extremely dangerous matter because it has a quantitative and qualitative impact on Iraq's share negatively.

2. Excessive use of water

Water effectively affects human life and all its requirements. It is the main influence on human growth and development, especially in a developing country like Iraq, which is under the influence of a mostly dry climate that is extreme in many of its characteristics (23).

To meet its water requirements, the study area depends directly on the water of the Euphrates River and its branches for domestic use, as well as irrigation of agricultural lands, as well as industrial use. The study area witnessed significantly high rates of wastage and water depletion caused by a number of spatial, economic, social and cultural factors of the community, including high rates of population growth as well as On the high rate of water pollution and the deterioration of its quality. The use of water for agricultural purposes accounts for the largest percentage of water uses in the study area at a time when concern has reached its peak regarding the availability of water. Therefore, the use of old irrigation methods causes farmers to flood agricultural lands with large quantities of water without taking into account their need for water, and this is due to the farmer's weak experience. In irrigating his crops because he believes that watering crops with large amounts of water and at varying irrigation times will have a benefit in increasing the growth and production of the crop, but this has a negative impact on the soil due to the excess water being exposed to evaporation and increasing water losses. A call for each crop to have a water meter and a specific number of irrigations. It cannot be overcome, except that the farmer's modest experience and failure to adopt the correct irrigation methods causes the waste of large amounts of water. Also, the rise in temperature will lead to an increase in the water needs of plants and a decrease in crop productivity, and thus it leads to large water losses and thus leads to water scarcity (24).

One of the aspects of excessive water use is the large and excessive domestic use of water for purposes (cooking, washing utensils, bathing, washing clothes, watering home gardens, etc.), as well as car wash workshops that use large amounts of water.

One of the reasons that lead to excessive use of water is:

1. Lack of awareness among people of the importance of this natural resource and that it must be preserved.
2. Absence of law.
3. Low water prices.
4. Increase in population.
5. High temperatures.
5. Violations of water quotas set by the governorates of Al-Qadisiyah, Babil, and Anbar.
6. Projects established on the Euphrates River by the countries of the Upper Euphrates.

All of these reasons led to an increase in water scarcity in Iraq in general and the study area in particular.

Conclusions

1. Natural factors, especially the global warming that the region is witnessing, have affected the decrease in the water discharge of the Euphrates River through increased evaporation in large quantities.
2. The lack of precipitation in recent years also affected the supply of the river in the study area with sufficient amounts of water

3. The study showed that the policies followed by the countries of the Upper Euphrates contributed significantly to the decrease in the river's water levels through the establishment of dams and reservoirs.
4. The study showed that the Turkish projects mainly affected the decrease in the river's water levels.
5. The study also concluded that the irresponsible excessive use of water by citizens contributed to the depletion of the river's water significantly.

Suggestions

1. Iraq's demand for its prescribed water share through establishing international agreements with Turkey and Syria.
2. Resorting to international courts for Iraq to obtain its prescribed water share.
3. Reducing global warming by increasing green spaces and reducing air pollutants of all kinds in the study area.
4. Rationalizing water consumption in a way that reduces waste of this important natural resource.
5. Spreading awareness among people about the importance of water and how to conserve it.
6. The law should take a role in reducing water waste.

Margins

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