Water Flowing Beyond Borders and Water Problems

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Abstract

The difficulty of drawing the borders of the Middle East originates from the fact that the region is not a clear geographical unit. This means that it is determined by the political and cultural elements as "The West", not by the geographical element as the "Western Europe". The important position of the region becomes clear with the production of petroleum. The petroleum of the Middle East meets a large part of the energy requirements of Europe and Asia, however almost everyone agrees that water began to take the place of petroleum and will be the most important natural resource in the near future at the Middle East. We tried to emphasize the strategic importance of the water in the Middle East, the hydrological characteristics of water flowing beyond borders and the replace of South-Eastern Anatolia Project in the Turkish-Arabic relations, the use and management of water resources, some efforts and search for solutions.

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1 Introduction

Water is the source of life and development on earth (Population Action International, 1997). Water will be carry on its characteristics of being a critical factor for half a century in the economic and political plans of the developing countries for its vital value, economic and social development rate during the century ahead.

As a matter of fact, detailed studies have been carried out on the pressures created on such a limited natural resources as water by fast increasing population of the world and economic development policies within the framework of both various expert organizations in the United Nations (UNESCO – United Nations Educational, Scientific and Cultural Organization, FAO – Food and Agriculture Organization, UNDP – United Nations Development Programme, World Bank) and non-governmental organizations (IWRA – International Water Resources Association, IIMI – International Irrigation Management Institute, etc.) (Kibaroglu, 1999). These organizations give important contributions to this scarcity problem.

Because of its increasing importance, water has been the subject of both interregional and international political disputes. It is frequently estimated that the great wars in the future occur due to water, not petroleum or other natural resources. The basic reason of these disputes is inevitably increase in population in this period. In many countries, population increased about four times from 1900 to 2000. It is expected that available water resources do not change and that there is no substitute for water (ASO, 1999). So we should find a method which increases the water resources or gives effective use ability.

The difficulty of drawing the borders of the Middle East originates from the fact that the region is not a clear geographical unit, because political and cultural elements are also important. Therefore, definition has changed with time with the interest of the West in the region and the development of interventions. With the narrowest point of view the Middle East includes the triangle of Turkey, Iran, Egypt and countries in this triangle. With the broadest point of view, it includes these countries and neighbouring Muslim countries, that is, North Africa, Sudan, Somalia an Afghanistan. The most agreed definition among scientist is the region obtained with the addition of Turkey, Iran and Israel to the Arabic countries.

The important position of the region with twenty countries understands clearly with the production of petroleum. The petroleum of the Middle East meets a large part of the energy requirements of Europe and Asia. 75 per cent of the petroleum consumed in the Western Europe and 90 per cent of the petroleum consumed in Japan comes from the Middle East. To be rich in this strategic raw material has made Middle East a competition area among big countries (Sander, 1996). In addition to petroleum, the region is the place where almost all monotheist religions have originated. The religion struggle has not ended and has still gone on in the region from 1500 years.

Almost everybody agrees that water began to take the place of petroleum and will be the most important natural resource in the Middle East, and also the wars in the future will be occur due to the water in this region where stress and struggle have become a tradition among these countries (Ahmer, 1999). For these reasons we wanted to write this paper to stress the importance of the water.

2 An Overview of the Water Problem

Why is the water so important for these countries? What are the main problems? We tried to explain these questions in this paper.

Water is essential for human life, environment and development, but it is a finite resource. Main reasons for increasing water demand are population growth, expansion of agriculture, industrial development, urbanization

and rising standards of living. From 1900 to 2000, land under irrigation has increased from 50 million hectares to 267 million hectares; population has grown from 1600 million to 6000 million in one century (Gleick, 2000). On these grounds water shortage is an important problem for all over the world. We stress the followings about the general situation of the water problem in the Middle East:

• The available water resources in the Middle East will come to a circumstance which can not meet the requirements, therefore a serious water scarcity will emerge in the region in the near future,

• Water will be a basic potential cause of wars in the Middle East,

• The water problem in the Middle East had two dimensions. Firstly the large majority of the countries in the region didn't have self-sufficient water reserves. Secondly there were disputes among the countries in the region on sharing the waters of the rivers flowing beyond borders such as the Tigris, Euphrates and Nile Rivers,

• The other serious dilemma for understanding and solving the problems experienced on the matter of water is that the countries of the region are not willing to give the statistical data to independent researchers because of the strategically important attributed to water by them.

3 Hydrological Characteristics of Water Flowing Beyond Borders

International water experts divide the soils to be irrigated into six categories. The soils in the first three categories are high-quality soils which give the highest yield with irrigation. The soils in the fourth category are poor soils with marginal value. The soils in the fifth category are soils from which yield can be obtained by considerable investment and the soils in the sixth category are poor soils from which no yield can be obtained even with irrigation. While all the Turkish soils irrigated from the Euphrates River are soils included in the first three categories. International water experts emphasize that only 48 per cent of soils which Syria states to irrigate are the soils with this characteristics. The fact that quality of the lands is not irrigated and much water is allotted to poor quality soils is contrary to the principle of fair and rational use of water (ASO, 1999: 25).

In the UNESCO (2003) report, it is stated that water-resource management is a focus on using water more efficiently and reallocating more effectively among existing users. In addition to these there is always great potential for better conservation and management. Fair and rational use of water flowing beyond borders as adapted by international law by neighbour countries, it requires that the water should be considered as a whole and that the countries should give each other complete and correct information about to eliminate soil and other physical and socio-economic factors.

The main rivers of the Turkey are Euphrates, Tigris and Orontes Rivers. In Turkey, which total flowing amount is 186 billion m^3 in a year, the Euphrates and Tigris Rivers constitute about one fourth of this amount. The Tigris and Euphrates begins in Turkey and flow through Syrian territory before entering Iraq.

The Euphrates River whose starting point is in Turkey and it is largely fed by the snow in the Region of Eastern Anatolia passes through Syria and Iraq. The Euphrates River has lengths of about 2.330 km from the point where the branches of Murat and Karasu. The annual water potential of the Euphrates River which takes the Habur branch within the borders of Syria and the water of Sacir, coming from Turkey reaches 35 billion m^3 at the border between Syria and Iraq. The contribution of Syria is only 3.4 billion m^3. There is no contribution in the territories of Iraq. The contribution from Turkish territories is 90 per cent and that from Syria is 10 per cent (Bilen, 1996). It is estimated that annual average of the water naturally carried by the Euphrates River is about 30 billion m^3 at the border of Turkey and Syria. The contribution of the rivers joining in the Syria is 2 billion m^3. However, as is the Tigris River in the East, the Euphrates is not a river, which is a regularly flow through out the year. The Euphrates River, which has much water in the months of April, May and June, at these months the snow in the mountains of Eastern Anatolia begins to melt (Uluatam, 1998).

The Tigris River receives 38 per cent of its water from Turkey. On the other hand Turkey contributes most of the Euphrates Basin's flow (88 per cent) (Hakki, 2006). The Tigris travels a distance of about 1840 km up to the point where it joins with the Euphrates River. The Tigris enters Iraq after forming the border of Turkey and Syria of about 30 km. Hezil Creek, which is a side branch of the Tigris and constitute the border of Turkey and Iraq for a short distance and Great Zap Creek, which originates from Hakkari meet with the Tigris in the territories of Iraq and total contribution of Turkey reaches 21.3 billion m^3 (Bilen, 1996).

The Orontes originates from the Bekaa Valley passes through Lebanon and Anti-Lebanon Mountains and while turning to the North, it first enters Syria, empties in the Homs Lake and goes out from northern bottom of the lake. Then it passes through the Homs and Homa Cities. After irrigating the Cab Valley in the north of Syria, it enters the territories of Turkey at the west of Antakya. The Orontes, which is supported with the waters of Karasu and Afrin coming from the North in Hatay flows in the sea at the southwest of Antakya. The drainage area of Orontes River is 21600 km^2 and total length is 287 km (159 km is in Syria, 88 km is in Turkey). Large part of the water of Orontes River which carries annually an average of 2.4 billion m^3 of water is used by Syria. In addition to her dams present on the Orontes River, Syria plans to construction of these new installations, the water remaining to Turkey will be reduces to 25 million m^3 annually. While Syria condemns Turkey with

reducing the water of Euphrates River as the source country she leaves very little water for Turkey by using almost all of the water of Orontes River (ASO, 1999: 29).

4 History of the Water Relation in the Middle-East

The first document about the water problems between Turkey and Iraq was Turkish-Iraq Friendship Agreement in 1946. Protocol No.1 of the agreement was assigned to the control of the waters and braces of the Euphrates and Tigris Rivers. It is stated in the agreement that the construction of flood protection installations on the branches of the Euphrates and Tigris Rivers is important for Iraq regulating to flow in order to obtain and prevent the flood disaster during the annual floods. Thus the advantages for Iraq of the dams to be constructed in Turkey have been underlined from the standpoint of preventing floods which have been and continue to be a problem for Mesopotamia throughout the history (Uluatam, 1998: 62).

The first important strained relations for the Euphrates-Tigris Rivers begin emerged in 1974 with the compilation of the Keban Dam in Turkey and Tabka Dam in Syria at the same time and with the necessity of filling both dams at the same time. In this period, Turkey fulfilled her responsibilities and let 450 m^3/sec of water flow in Syria as agreed upon in the previous agreements. On the other hand, Syria did not fulfil her previous responsibilities and let very little water flow to Iraq from Tabka Dam. This condition caused strained relations between the two countries. Iraq took military action against Syria, but it was solved with the intervention of Saudi and Soviet authorities.

Although all necessary measures were taken not to harm Syria and Iraq when the contraction of the Atatürk Dam was completed and the phase of the filling water was started on January 13, 1990. An extensive propaganda started in the Arabic world and public opinion of the world. They said that Turkey had changed the course of the Euphrates River, and that the waters of the Euphrates and Tigris would not be given to Syria and Iraq.

Turkey had taken all kinds of measures not to harm Syria and Iraq from the water holding process which was a technical necessity in the construction of a dam. When the targets of consumption is considered, it has seen that the total amount of water the three neighbour countries plan to consume from the Euphrates River for irrigation, energy and other purposes is 17.3 m^3 more than the total potential of water of the Euphrates.

In Turkey, branch of projects on the Euphrates River was expanded on the one hand and production of similar projects was started in the Tigris basin after Keban Dam was put into operation. Syria and Iraq also objected to the construction of the Birecik Dam. The bunch of projects emerged as a result of the activities of many Turkish engineers and firms were converted into very detailed regional development project after 1977. The duty of coordinatorship of this activity named as South-East Anatolia Development Project (GAP). GAP started an economic revolution in the region.

GAP was giant project covering a total of 21 dams, 19 hydroelectric powerhouses, irrigation tunnels and additional installations on the Euphrates and Tigris Rivers. It was considers that an area of one million hectares would be irrigated with the water of the Euphrates River and an area of 625.000 hectares would be irrigated with the water of the Tigris River. The project would actually be irrigates and that 20 per cent of the total hydroelectric potential would be put into operation (SPO, 1990). Financial problems of GAP had to be solved for each investment separately. Both European Investment Bank and French, German and Italian governments greatly participated in the financing of a total of $ 85 million of the Keban Dam outside the scope of GAP. Syria and Iraq's main fair is about GAP. They think that GAP will reduce the total flow of water into their territories.

In order to determine the principle for fair and rational use of water changing borders, Turkey agrees on the establishment of a Joint Technical Committee (JTC) formed by the experts of the three countries. The duty "to decide on the method that will define the reasonable and suitable amount of water required from waters flowing beyond borders by each country" was given to the JTC formed in accordance with the protocol of Mixed Economic Commission signed between Turkey and Iraq in 1980. The JTC made its first meeting in 1982 within the framework of the definition of the duty mentioned above with the participation of Turkey and Iraq, and then Syria participated the meeting in 1992. These meetings went on seven years until the start of the Gulf War in 1990. Discussions ended as a result of the conditions emerging at the end of the Iraq-Kuwait War (Bilen, 1996: 91). 16 meetings were held in the discussions which last until 1992. With regard to the aspects of the water problem concerning Turkey, it contrary to the expectations, does not have wide and rich water resources to be allocated to meet the requirements of others.

5 Solutions to the Water Problem

What can be alone to solve this basic problem or at least to alleviate it? The answer that can be given to this question will shape the future of the region.

Turkey is not a country that has excess water. Although she has sufficient water resources now, she may be unable to meet her requirements in the near future. She will be faces with the serious problem of water scarcity especially in the Western regions because of the unequal geographical distribution of available water resources

(Ministry of Foreign Affairs, 1996). In addition to the national arrangements for the solution of water problems and proper use of water within the borders of a certain country, the necessity to develop the arrangements that can be applied to the international water problems has begun to emerge today.

For the people of the Middle East, being with the rules of water is a habit that goes back thousand of years. There are many arrangements concerning water in the old Babylonian law rules, complied by Hammurabi. These rules maintained their effects in the Middle East for countries and determined sometimes the view to water of the three great religions emerging from the region and sometimes the traditional law of water.

International rules of law have three basic sources which can be expresses as:

- Agreements,
- Customs,
- General principles of law.

Besides, the decision taken on various disagreements among states by some organizations such as UN International Judicial Council contains elements that are sources for international law. It is seen that in the solution of the water problems encountered, countries have frequently resorted to such supply measures although they are expensive and that they are not interested in the demand measures which can be more effective in the long term because of the political difficulties in application.

Experts propose many methods on the solution of the water problem, the first of which is the rational and careful use of available water. The other one is the protection of the ecological balance of water basins because it is known that many water resources will become unusable because of the pollution and run into waste land will be experienced as a result of misuses of water. It is necessary to find the ways of using it several times to prevent water waste. In addition, it is recommended that the countries with water problem be direct themselves to imports instead of farming.

One of the measures that can be taken because of the increasing demand for water is too increase water supply provided that more expensive new water resources will be put into operation. Transfer of water from one region to another by pipelines, transport of water in large volumes by seaway, inter-basin water transfers treatment of sea water can be enumerated as the examples for the new water resources of this type. It is seen that many of these methods have been applied in the Middle East.

Savings in the use of water and prevention of water waste are also important. Technical effectiveness can be increased in the use of water by such applications as prevention of water leakage and evaporation use of waste water in agricultural and industrial areas after treatment, expansion of use of meters in water consummation.

Management of water resources does not consist only of setting up a balance between water supply and demand and when setting up this balance, protection of water quality is also extremely important. Since pollution of rivers due to agricultural activities occurs of many points along the river. It is a process more difficult to control, compared to the point pollution such as industrial wastes.

6 Conclusions

With wisely managed policies and limited increase of population, water resources of Turkey appear to be sufficient to meet her requirement for quite along time. Bu water consumption per person has been increasing fast through out the world and usable water resources becoming scarce in parallels to the fast increase of population and improvement of the level of development. This sometimes causes disagreements among countries. There are also disagreements among Turkey, Syria and Iraq on sharing the water.

Total population of Turkey will approach to 85 million in 2025. It is neither possible for Turkey to bring a radical solution to the water problem of the Middle East nor she has such a responsibility. For this reason, it is completely unnecessary to create today the projects similar to the peace water project in the region to each other gives the impression that the region will be deprived of political security and stabilization necessary for such projects for a long time. It is possible to alleviate the increasing pressure on water resources and thus existing problems to some extend solve by effective management of water resources.

References

- Ahmer, Munis (1999). “Use of Water Resources in Central Asia”. Eurasia Studies. 15. Ankara.
- ASO (1999). Water Problems of the Euphrates-Tigris Basin. ASO MEDYA. Ankara. pp. 97-120.
- Bilen, Özden (1996). “Ortadoğu’da ve Türkiye’de Su Sorunu”. Tesav Publication. 10. Ankara.
- Gleick, P.H., (2000). “The Changing Water Paradigm: A Look at 21st Century Water Resources Development”. Water International. 25. No 1. pp. 127-138.
- Kibaroglu, Ayşegül (1999). “Ortadoğu ve Kuzey Afrika’da Suyun Ekonomi Politiği”. Geo-Economy Journal. 1. Ankara. pp. 80-85.

- Ministry of Foreign Affairs (1996). Ortadoğu'da Su Sorunu. Ministry Of Foreign Affairs. Ankara.
- Population Action International, (1997). "Sustaining Water, Easing Scarcity: A Second Update". http://populationaction.org/reports/sustaining-water-easing-scarcity-a-second-update/
- Sander, Oral (1996). Politik Tarih. Imge Publications. Ankara.
- SPO (1990). GAP Master Plan Studies. SPO Publications. Ankara.
- Uluatam, Ozhan (1998). Damlaya Damlaya…: Ortadoğu'nun Su Sorunu. Turkey Isbank Publication-372. Ankara.
- UNESCO, (2003). "The UN World Water Development Report: Water for people, Water for life". http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/