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USE AND MANAGEMENT OF WATER RESOURCES

ECONOMIC AND POLITICAL PERSPECTIVES FOR WATER RESOURCES IN THE MIDDLE EAST: PARTICULAR EMPHASIS ON TURKEY AND SYRIA-IRAQ

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Abstract

The aim of this study is as follows: it is intended to analyze water resource conflict between Turkey and Syria-Iraq. The major rivers of the Middle East (The Nile, Euphrates and Tigris) and the secondary rivers such as Yarmouk, Jordan and Orontes are all transboundry rivers. The Tigris and The Euphrates have become a subject of conflict between Turkey and Iraq- Syria, and The Orontes between Turkey and Syria, in the recent years. Conflict has different perspectives; from economic to political. This paper is going to concentrate on economic and political consequences of transboundry water disputes between Turkey and Syria- Iraq.

The overview

On the one hand side, water is a scarce resource, and on the other hand is not equally distributed throughout the world. Some countries are water-rich, some countries are water-poor, or becoming water-poor. A water rich country is one which the amount of annual per capita water is 10 thousand cubic meter. Canada and New Zealand are countries with over 100 thousand cubic meter.

Middle East has become a water-poor region in the recent years. Historically, many civilization of the Region emerged around rivers. Famous "Fertile Crescent", from the Euphrates basin to the Eastern Mediterranean, took place in the Region. Recently, however, its population is growing well-over the world average, while water resources are not increasing. Although Turkey seems the most water-rich country in the Region, she also faces potential water problems. Her population is over 60 million, and is increasing with a rate of 2 percent per year. Annual per capita water is around 2000 cubic meter. Water is geographical distributed unequal. Particularly, well developed western part of the country faces a serious water shortage. Turkey's total water supply potential, around 200 billion cubic meter per year, is below the what River Danube discharges into Black Sea. Indeed, only half of this amount (around 100 billion cubic meters) could be utilized. As population grows, this means

a declining supply of water per capita in the coming years.

The Tigris and The Euphrates are the most important surface water resources in Turkey: They, both, constitute 28.5 percent of Turkey's total surface water potential. Both rivers are originated from Turkey and their main sources are located in Turkey. Tigris runs from Turkey to Iraq and receives streams from the high mountains in the Region. Euphrates runs from Turkey first to Syria, and then into Iraq. They merge on Shoat al Arab in Iraq and reaches to the Gulf as a single river. Turkey contributes 50 percent (or 19 billion cubic meters per year) to the waters of Tigris. Iraq contributes 40 percent and Iran contributes the rest. Iraq consumes 12 billion cubic meters per year and 26-28 billion cubic meters reach to the Gulf. The length of Euphrates is 2780 kilometers and 1220 kilometers is in Turkey. Turkey contributes 90 percent (28-30 billion cubic meters per year), Syria contributes only 10 percent (5 billion cubic meters per year). Iraq has no contribution to Euphrates. Turkey's claim is a utilization that counts 40 percent of her contribution to these rivers.

Having seen the future water shortages, Turkey has undertaken a large project, known as the Southeast Anatolian Project (SAP). This project aims to increase water utilization in the poorest part of the country through a number of dams. The water, then, will be used in irrigation and generation of electricity. It is expected that, along with increased agricultural production, agro-based industries will be developed. (Indeed, these industries are already developing in the Region). It is aimed to irrigate 1,7 million hectares land and the generation of 27 billion kwh. electricity – a resource that necessary for development in the early 2000 when project is completed. Energy potential of Tigris is 12.000 GWh and 35.000 GWH in the Euphrates. These two rivers represent 10 percent and 30 percent of the total hydroelectric potential of Turkey, respectively. The Project covers 10 provinces in the Region, which constitutes almost 20 percent of Turkey's 65 million inhabitants, and 10 percent of Turkey's total area of 780.000 square kilometers. Since Southeast Anatolia is poor, and therefore income is significantly below country's average, Turkey pays a significant attention to this Project. Euphrates is the most important part of the Project, since it flows through the center of the Region. Atatürk Dam, one of the largest in the world, has already completed. Totally 22 dams and 19 hydropower plants are planned, some already finished, and some under construction. In addition, Sanliurfa Irrigation Tunnel Systems and irrigation canals are under construction. Indeed, the Project has become a national proud in the recent years. It is widely believed in the Turkish public opinion that the Project will change cultural and social structure of the Region as economic development progress. Total project is going to cost 31 billion U.S. dollars.

Lower riparian countries, Iraq and Syria, are feared about the Project. Indeed, almost 35 million people in Iraq and Syria are strongly depend on these rivers in agriculture and generation of electricity. They have the idea that Turkey could cut water supply

from these two rivers. Their reactions are relatively understandable: Since Turkey had not paid attention to these rivers until mid-1970s, and had not utilized their waters, Syria and Iraq have enjoyed free supply of water. But, Turkey could not wait forever. Indeed, such a project will be beneficial for Iraq and Syria as well.

Water supply declines in the summer time, and increases in the winter. During draught period(s), water problems become severe. Dams provide regular supply of water for Turkey, Iraq and Syria.

Turkey has responsibility against her neighbors in water issues, and Turkey is aware of this responsibility. Turkey is seeking cooperation with Syria and Iraq in water utilization. One should accept the reality that Turkey should use water for her purposes, and also provide water to Syria and Iraq. As a reflection of cooperation, Turkey and Syria signed a Protocol of Economic Cooperation in 1987. Among other articles, Turkey has accepted to release a yearly average of 500 cubic meters per second in the Euphrates at the Turkish – Syrian border. Another treaty was signed between Iraq and Syria, splitting that amount 58 percent and 42 percent. The Tigris, on the other hand, has a bigger flow and fewer dams and has not yet occasioned much disputes. The flow at the Turkish- Syrian border may drop below 500 cubic meter per second time to time, but the amount has compensated immediately after. The average is assumed to be around 700 cubic meter per second. The SAP has not completed yet, and Turkey plans the current level of irrigation along the Euphrates ten-fold over the next ten years. (Economist, Nov 13, 45-46).

Among three countries concerned, Turkey and Iraq have more abundant water resources than Syria. Iraq also receives downstream from eastern mountains of Iran. Iraq, despite the war with Iran and the Gulf crisis, has successfully completed the Thartar Project – a diversification from The Tigris to The Euphrates. But, the recent embargo over Iraq might have generated some problems in water distribution systems, in terms of maintenance and spare part. In addition, Iraq faces the problem of water quantity. Iraq is located on the historic Mesopotamia, where soil salinity is important due to irrigation. On the other hand, rivers coming from Turkey and Syria into Iraq bring some pollution. Iraq and Syria came to near a war in the 1970s, when Iraq claimed that Syria was blocking The Euphrates in order to fill Lake Assad reservoir. Water supply into Iraq significantly declined, and Iraq lost almost 70 percent of winter crop in 1975.

The main point of objections formulated against Turkey claim that the two rivers are "common" rivers of three counties and therefore waters should be use after mutual agreement among countries. This claim implies that the three countries have to reach a "workable agreement" and that further implies they are aware of increasing population's demand for water. As discussed in the coming sections, international law and practices are different. Indeed, the two rivers are not common in the form of common possession of the three countries. International laws and practices recognize

that each riparian country at a transboundry watercourse system has the sovereign right to make utilize the water of the watercourse system.

The United Nations recognize "equitable and optimal utilization" of waters. This does not mean "common" utilization, rather, it says the utilization of water should not create any "appreciable harm" to other riparian countries. As far as "appreciable harm" is concerned, this should be understood as not only the downstream country, but also upstream country.

River Orantes is also a transboundry river, but it is less mentioned. It originates from Lebanon, runs into Syria, and reaches sea in Turkey. It runs 40 kilometers in Lebanon, 120 kilometers in Syria, and 88 kilometers in Turkey. Lebanon and Syria extensively use the River and remains almost no water in Turkey. Particularly in the summer period, when Turkey also needs the water for irrigation, the water level significantly decreases. It is also heavily polluted.

Data resources are controversial and reliability is questionable. Therefore, extensive studies are necessary in many subjects related to water in these countries. Figures such as consumption (agriculture, industry, municipality,...), groundwater capacity, re-use possibilities, water quality, water conservation activities are just few of them. Soil quality, for example, needed to be clarified. Soils are being classified in six categories, ranging from excellent to poor (and therefore impossible to cultivate). Syria claims that her irrigation plans cover from 350.000 hectares to over 1 million hectares. More precise estimates put the number between 400.000 hectares and 800.000 hectares. Iraq has more ambitious plans for irrigation. She would like to increase irrigation in the Tigris-Euphrates basin.

Water demand in the region

Water demand in the Region is rising. The Region is poor in terms of water supply. Even Turkey should not be accepted as a water- rich country. The supply of and demand for water was almost equal in the nineteenth century. But, not in the twentieth century. Until the 1970s, the common belief in the Region was that past water management systems were appropriate. Food import to the Region was increasing as a result of significant gains from petroleum export and there was no significant problem to feed the people of the Region. Despite this fact, it had been assumed that new water resources would be found. But, as a result of effectiveness of the international food trade and raising payment difficulties by countries, the water has become important issue. The concept of water demand management, however, has been neglected.

Water demand has consist on three main factors in the Region. The first one is that the allocation of water between agriculture, industry and municipal use, and between the different crops. The second is the efficiency of water distribution system. Although reliable data are lacking, it is known that significant losses are exist in the

water distribution system. The level of pollution and its rate of increase is the third factor.

No question about the water resources development projects may create some environmental problems. Any project should combine the goal of sustainable economic development and minimal environmental effects. Euphrates and Tigris have high quality waters. Satisfactory quality for irrigation will be provided in lower Euphrates project and the level of salination will be satisfactory as well. The return flow is significant and it is clean enough for additional irrigation in the downstream riparian countries. Syria may enjoy from this situation. The problem is, her own soils are already salinated and could dump oppressive load of dissolved solids on Iraq. Salination has a number of causes, such as poor drainage facilities, soil characters. A UN study has concluded that the Syrian farmers pumped as much as 20 percent more water over their fields. (Economist, 13 Nov, 45-46). But, quality of water is the most important one. Therefore, an efficient drainage facilities are in the Tigris-Euphrates Basin is of great significance.

Iraq critics the low quality of water in her field and the Gulf. This should be elaborated. Indeed, the Gulf region is polluted because of industrial and oil pollution: Oil refineries, highly toxic industrial metals and other industrial wastes continuously pollute coastal and off-shore waters. The pollution may be even worse than anticipation because of lack of proper data and poor marine management techniques.

Legal rules on the uses of the waters of international rivers

Water disputes between countries are common in the world. A few such a disputes should be mentioned as Lake Lanoux (Spain-France), Columbia river (US-Canada), The Uruguay River (Uruguay-Argentina), Indus River (India-Pakistan), Colorado and Tijuna Rivers (US-Mexico), Nile (Egypt-Sudan). All these disputes were settled by the goodwill and spirit of cooperation of these countries, either by political ways or by adjudication.

In practice, disputes may be classified as legal disputes or political disputes. In legal disputes, concerned parties (countries) base their claims according to the Principles of International Law. In many situations, the differences of claims (and opinions) emerge. In these situations, the interpretation of rules and mediation are necessary. Political disputes arise if; the disputed subject is not an unorganized field of international law, the disputed subject is the sovereignty or closely linked with the vital interests of countries, or the disputed subject is amendment of the international rules.

Political disputes are much more common than legal disputes. In practice, they could be settle by political ways if the countries are agree: negotiation (sometimes takes long time), mediation, conciliation,...

There is no solid and comprehensive rules in transboundry rivers, except for navigational purposes. Legal views applicable to international watercourse disputes are:

1. Absolute sovereignty view (Harmon Doctrine). It is almost 100 years old and was applied to the Rio Grande disputes between US and Mexico. It was given absolute sovereignty to upper riparian state. The doctrine was later abolished.
2. The natural unity view. This is a view which is reaction to the above statement. It is benefit of the lower riparian state, i.e., the upper riparian state should take into consideration consent of the lower riparian state. The view is supported by only states fit into this situation. Iraq is an example.
3. Priority in utilization. Priority is given the upper riparian, but, this does not imply acquired rights. New installations, such as dam(s) for an irrigation project, by upper riparian may state affect the previous utilization of the lower riparian state. This sort of utilization does not create any contradiction with international law, unless a dramatic harm is being given to lower riparian, i.e., international law does not accept acquired rights in this issue.
4. Equity in utilization. This is most widely recognized view. It states that every riparian state has the right of utilization of the international watercourse within her boundaries. But this is a reasonable utilization and should not give any substantial harm to the lower riparian states. This is absolutely not equal sharing of waters between/among countries.

International Law Association tried to determine rules, called as "The Helsinki Rules on the Use of the Waters of International Rivers" at Helsinki in 1966, "Complementary Rules Applicable to International Resources" at Seoul in 1986. United Nation is working in an article called as "draft Articles on the Law of the Non-navigational Uses of International Watercourses" in 1994.

It is observed that the international community is slowly coming a consensus in the following points:

- The 1966 Helsinki Rules,
- The 1988 Report of the International Law Commission, concerning the Law of the Non-navigational uses of international watercourses,
- The 1989 Bellagio Treaty, drafted by an interdisciplinary team.
- The Helsinki Rules particularly articles 4 and 5) emphases four major principles. These principles have been seriously concerned at the United Nation International Law Commission:
  - Prior use remains 'de facto' not a 'de jure' condition. In the SAP situation, although Iraq is a prior user of the Tigris and Euphrates (since Mesopotamia), she cannot claim this situation against Turkey and Syria.
  - Social and economic needs should be taken into consideration while a project is discussed.

- Comparative cost of alternative resources are to be taken into account.
- Avoidance of appreciable harm between riparian. If a project is harmful for public health, industry, property, agriculture, environment,..., this should be compensated.

The main ways of sharing the waters of an transboundry watercourse are:

- equal sharing, for example, The waters of River Aras are equally shared between Turkey and USSR by an agreement signed in 1927.
- percentage utilization or seasonal sharing.
- the bases of equity.

Turkey and Syria reached an agreement in 1939 for an equal shares the waters of Orontes and Afrin. Turkey is lower riparian country. But, the agreement has no practical use, and almost no water left to Turkey by Syria.

Turkey and Iraq signed a treaty in 1946 in order to regulate the waters of Tigris and Euphrates. This treaty has no article about limiting Turkey's sovereign rights for installations to regulate the Rivers in the Turkish territory. Should regulation is for irrigation purposes, a new treaty should be signed between the two neighbors. There are also articles about Turkey's right to blockade the Rivers in suitable areas in Turkey.

Where is the solution?

Cooperation between Turkey and Syria-Iraq is inevitable. This cooperation should be in the interest of all countries. Three-way joint studies on the optimal use of the water of the two rivers would find the solution(s). It is possible to draw necessary solution for the similar countries in the world. It seems that Turkey, along with Israel, has the most advance water-use technology in the Region, but it should developed more in the future. The cooperation should address the following points:

- Determine the extent of the water supply problem and preferred alternative for solving the problem.
- Determine the area that will be affected by the improvement.
- Conflict resolution practices. This is necessary in identification of economically and socially beneficial water use techniques. Consultation among countries are essential. This will provide introduction of new economical and legal instruments in order to shift water use to the most beneficial users and uses.
- Demand management practices. Investment in sectors which will bring "optimum" returns in crop production and other activities. Water pricing, metering, monitoring, and related legislation are necessary.
- Sustainable use practices. Sustainable use of land, and identification of appropriate systems, in terms of traditional and new uses, should be adopted.

Monitoring, legislation, regulation, and institutional framework should be set up.

- Control of surface water supplies. Large dams and minor water storage facilities are necessary. Urban water supply systems should be improved along with reduction of water leakage, efficient water-use techniques and reducing evaporation in agriculture, and pricing should be considered.
- Use of groundwater. Along with surface water use, withdrawals from groundwater should be combined. Distribution, drainage, and urban-industrial water usage as well as water re-use and water treatment techniques should be adopted.
- Environmental concerns. Recognition of environmental economics and its relation with water-use techniques, adoption of Environmental Impact Assesment should be put in action.

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