Case report

Water resources have been threatened in thrace region of turkey

Case report

Volume 4 Issue 1 - 2016

M. Cuneyt Bagdatli,[1] Korkmaz Bellituerk[2]

[1]Department of Biosystem Engineering, The University of Nevşehir Hacı Bektaş Veli, Turkey
[2]Department of Soil Science and Plant Nutrition, Namık Kemal University, Turkey

Correspondence: M. Cuneyt Bagdatli, Department of Biosystem Engineering, The University of Nevşehir Hacı Bektaş Veli, Turkey, Email cuneytbagdatli@gmail.com

Received: June 16, 2016 | **Published:** July 05, 2016

Increasing world population, changing climate conditions and economic activities are growing with each passing day makes it more important than water. This is where the water demand of the different species and in different locations, using reliable data requires the development. 2.37million ha with a total of 627.595 ha in Thrace area of Edirne province, Kırklareli Province 655.036 ha, 621.788ha of Tekirdağ Province, Çanakkale Province (European side) and 123.899ha of Istanbul Province (European side) has 340.266 ha area. Thrace Region has 50 districts and about 1.000 small settlements. Population density in the region, Turkey is on average about 10million people live in the region according to the results of the 2000 census.[1–7] Trakya region of Turkey on the European continent and is located east longitude 26°-29°, 40°-42° north latitude. Edirne, Kırklareli and Tekirdağ with all of the provinces of Çanakkale and Istanbul Provinces are located in the European side. The climate of the region is generally hot-dry summers, while winters are cool-rainy. A major part of the precipitation is in the form of rain. The climate of the region is generally hot and dry summers, while winters are cool and rainy. A major part of the precipitation is in the form of rain. Edirne, Kırklareli and Tekirdağ provinces, we examine the data corresponds to an arid climate year around 10-12years. That the drought in 1985, 2000, 2001 and 2008, rainfall has decreased in all provinces.[8,9] 603.5mm in Edirne, Kırklareli Provinces and 549.9mm average rainfall is 588.1mm in Tekirdağ, 1985, respectively 452.9, 444.0 and 483.9mm was recorded at around. That is because rainfall has decreased in approximately 20-25%. Later in the year 2000 and 2001 in Edirne Province (419-467.2mm) 25-31%, in Kırklareli Province (326.6-467.2mm) and 20-41% in the 2000s Tekirdağ Province (410.1mm) to 30% the rate was little precipitation.[11]

Again, Edirne Province in 2008 (387.0 mm) of 36%, in Kırklareli Province (424.5mm) and 23% in Tekirdağ Province (304.2 mm) of rainfall less than 48%. Particularly agriculture that the volatility in precipitation constitutes significant pressure on other water sources.[11] Edirne Province in terms of average temperature changes in long-term average of 13.5°C and 12.0°C Kırklareli, Tekirdağ is 13.9°C. Temperature increases are seen in light. In recent years, Edirne, Kırklareli and Tekirdağ Provinces average temperature has exceeded the 14.0-14.5°C and has risen. Yet all three provinces as well as in the dry years 2000 and 2001, the average temperature exceeded 14.5°C. This means that both reduced precipitation, as well as the temperature raised, people, plants and animals has increased the need for water. Increased evaporation from dams and ponds are in use can be significantly reduced water quantities. Groundwater resources are also fed a sufficient amount.[11] The presence of this one occupies an important place in Istanbul city. A large part of Thrace region is surrounded by the sea. The land borders but also the borders of the Republic of Turkey, Bulgaria and Greece. Bulgarian border (200km), starting on the coast of the Black Sea from the mouth of the Ergene River is attained near the Meriç river Kapıkule districts. After this point, the Turkey-Greece border (204km) begins. This boundary follows the beginning of the Meriç River, Edirne-Karaağaç Province to leave in Turkey in this way alone through the western part of the Meriç River, reaching the Aegean Sea. Examined field position is shown in Figure 1.

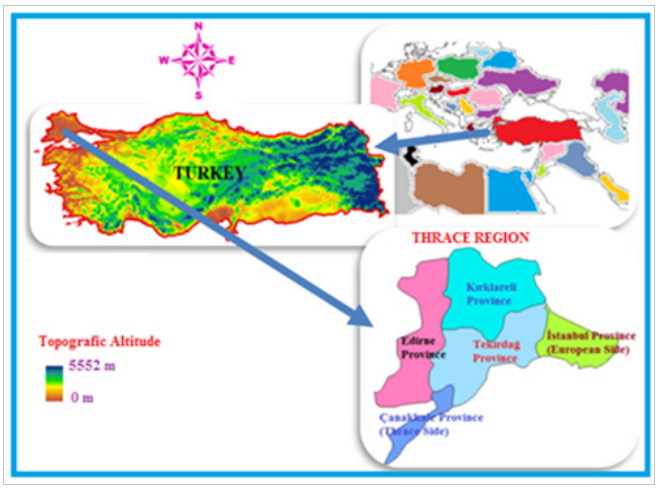

Figure1 The location of examined field (Thrace region of turkey).

The presence of water in Turkey used about 110billion m^3. This above ground 95billion m^3, 12billion m^3 of underground water and outsourced 3billion m^3.[1] This amount is 4.0billion m^3 to 2.9billion m^3 it aboveground Thrace region, 0.7billion m^3 outsourced (Meriç River) and the underground water is 0.4billion m^3. Per 1600m^3 of water per capita in Turkey, in the region of Thrace 500m^3, if the world is 8.000m^3. According to the World Water Council, countries with annual per capita amount of water between 1000-2000m^3 per capita countries that are faced with water shortages. In this case, drought, food production, economic development and the conservation and protection of natural life is called to experience serious problems. Turkey today in practice the average amount of water consumed per person is 30million m^3 of water used is taken into account that 550m^3. However, this figure is even higher if the figures obtained from the use of all water resources in the region of Thrace. This water shortage in the region of Thrace, in the very water that irrigated agriculture

cannot be the main difference being disabled due to the use of the agricultural sector.

Even watering some of the economic irrigated agriculture in the nature land of Thrace, increasing industrialization and the polluted water resources and located in Istanbul city in the region with the urbanization of the current water demand in excess of 1billion m^3 to 3billion m^3 will estimate how much of the water crisis will be faced in the future of shows that large in 2030.

Thrace Region beginning of a contamination of a head on the floor that Ergene River and its tributaries and groundwater in the region is an immediate solution to the current situation of the aquifer poses a great danger which obliges. Because the first Tekirdağ-Çorlu Province and a large number of municipal drinking water and its use, including Lüleburgaz province (in Thrace Region) provides these groundwater resources. Inadequate water sources of pollution of major rivers of Thrace Region and especially rapidly Ergene River requires the development of new water resources of the people.

Allowing the accumulation of rainfall in the basin of the pond to the Thrace Region should be increased. The city, which is calculated according to population projections for different regions and rural drinking water needs are given in Table 1. In the last column of the table, a transmission network and the amount of the total amount of water will take place in the distribution units is provided. The resulting figure is seen when examining the need of water about half a fold every 20 years. In addition, not only that of the water needs only to be taken into consideration that there are huge amounts of water needed in the industry and other important industries. Again, read the results in a different way to chart the region since 2010 to 3.0million m^3 daily drinking water needs of 2030 and has increased to 5.3m^3 and 9.5million days-1 respectively in 2050.[9] A study was conducted to investigate of direct and indirect impacts of climatic events during the last 11years (1996-2006) in the Çukurova Region, the greatest maize production potential of Turkey. In conclusion, it was determined that decreases in maize yield in Çukurova region was depending on both high temperature and low relative humidity or high temperature and high relative humidity. In growth stage of maize was determined to be important polynomial relationships among yield with average temperature and relative humidity values. It can be said that generative and vegetative growth of maize crop slows down under the unfavorable climate condition.[10]

Table 1 Drinking-water needs for the coming years in Thrace Region of Turkey.[9]

Drinking-water requirement *(Million m^3)				Water network (m^3 s^{-1})
Years	City	Rural	Total	
2010	696.74	21.98	718.72	34.2
2020	936.36	26.79	963.15	45.8
2030	1 258.39	32.66	1 291.05	61.4
2040	1 691.17	39.81	1 730.98	82.3
2050	2 272.79	48.53	2 321.32	110.4

*Water consumption for urban per capita of 200 L person -it was 100 L person-1 days to break

Increasing misuse of water in agriculture and industry, especially with global climate change gives a signal of a serious decline in water resources. Especially in case of pollution caused in large river basins in the region, the use of chemical pesticides and fertilizers in agriculture and industrial waste reach up to the increasingly high level of pruning leads to depletion of available water resources. Protection of water resources in the region of Thrace, from start to finish cleaning the floor and chemical agents that specifically Ergene River and kept at a minimum level of fertilizer use to switch to organic farming practices would be the right approach. For example Baran and Gokdogan reported that; "*farm fertilizers can be used in barley production, in place of chemical fertilizers, which make up an important part of the inputs*".[8] In particular, increased waste control and intensify the management and supervision of the industry to go the way of the construction of waste treatment facilities on a regional basis will be immediately obvious to contribute significantly to the reduction and protection of water resources. It should be noted that; Water is not an inexhaustible resource. If a day comes with six accurate water used and protected and reaches a level equivalent qualifications cannot be provided.

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

References

1. Anonymous. Turkey Land Ownership, Soil General directorate of publications. Ankara/Turkey (in Turkish); 1978. 55 p.
2. Anonymous. Average and extreme temperature and precipitation Bulletin. State meteorology Affairs General Directorate of Publications, Ankara/Turkey (in Turkish); 1984. 678 p.
3. Anonymous. İstanbul Province Land Ownership. Rural services general directorate of publications, Ankara/Turkey (in Turkish); 1987;4:180.
4. Anonymous. Land Use of Kırklareli Province Rural Services General Directorate of Publications. Ankara/Turkey (in Turkish); 1991;39: 80.
5. Anonymous. Edirne Province Land Ownership, Rural Services General Directorate of Publications. Ankara/Turkey (in Turkish); 1993;22:74.
6. Anonymous. Asset Land of Tekirdag Province, Rural Services General Directorate of Publications. Provincial Reports, Ankara/Turkey (in Turkish); 1993;59:8.
7. Anonymous. Asset Land of Tekirdag Province, Rural Services General Directorate of Publications. Provincial Reports: Ankara/Turkey (in Turkish); 1999. 17 p.
8. Baran MF, Gokdogan O. Energy input-output analysis of barley production in thrace region of turkey. *American-Eurasian J Agric & Environ Sci*. 2014;14(11):1255–1261.
9. İstanbulluoğlu A, Bağdatlı MC. Use and management of water resources in Çerkezköy-Tekirdağ Çerkezköy Municipality, Thrace Region, Tekirdağ/Turkey (in Turkish); 2012.
10. Uçak AB, Ertek A, Güllü M, et al. Impacts of some climate parameters on the yield and quality of maize growth in the çukurova region. *Turkey Gaziosmanpaşa University of Agriculture Faculty Journal*. 2010;27(1): 9-19.
11. Yüksel AN. Forestry and water resources special commission report. Thrace development agency. *Tekirdağ/Turkey (in Turkish)*; 2015;39:80.