



The man who knows water as blue gold

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Turkey*

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This article is the short and real life story of an engineer who has utterly devoted his life to water. Who has been trying to help people by ensuring much cleaner and clearer waters during his whole life. Who has been the witness of the lack of water. And although our hero has tried to manage and control water, he wishes this article to flow naturally.

Vahap Balman was born in 1947 in a small town in the eastern part of Turkey. There was no electricity, no drinking water and no sewerage system in those days.

The people took their drinking water from simple and shallow wells, which were only 3-4 meters away from very primitive toilets. Waste water was partly discharged into lagoons and partly disgorged into streets and open areas very close to the houses. The primitive toilets next to the houses were emptied only once a year, and decayed excrement was being used to supply the fertilizer needs for fields and gardens.

As it was no different in his primary school, our hero had believed that the drinking water and sewerage systems were the same all around the world. It was understandable that he had dysentery caused by drinking water containing tadpoles, amoebas, giardias and various bacteria. He never used medicine, and waited for the symptoms to pass naturally. Although he was competently aware of how to put an animal out to pasture, he had no idea about water pollution; nor did the other people in the town.

A drinking water system appeared in some parts of the town just when he started secondary school. He was incredibly happy to see water flowing from taps. When he talked about it at

home, his grandmother described flowing water as a lovely song.

Most of the people in the town were engaged in agricultural activities. They were growing their own vegetables and fruits. However, the hardest aspect of agriculture was that there had never been enough irrigation water as long as our hero knew. Since irrigation water was supplied by simple systems developed 400-500 years earlier, it was impossible to have sufficient water. Although there were plenty of water resources around the town, people had not developed them. To describe this attitude there was a saying: "Water flows, Turk just looks" People of that period preferred to maintain these traditional water systems that they had inherited from their parents by repairing them every year instead of using new technologies.

The life of people was simple, since they did not have many things to share. Belongings and needs were limited; but people were happy, because they thought that people all around the world were living like themselves. There was no communication media yet such as television and radio. Even so, there was unjust utilisation of water by the powerful families over the poorer, and there were many conflicts related to this.

Water was a source of both gratitude and also disaster for people. They had respect for the water, but they were not willing to actively control it themselves. As if the people had been hypnotized, they were willing to let the water flow away naturally. Many people were just waiting for water from the wells and water resources to come to their houses of its own accord. People thought it was a game of faith when the brooks were overflowing and damaging the environment. Many gardens and vegetable fields were dying when the primitive water canals were not repaired in time. People would stay passive and become sad instead of finding the

solution. That was a real manifestation of their life philosophy.

One of his most important experiences was in 1960 when he was 13 years old. In that year there was a census, and secondary school students were enlisted to support the census officers. Our hero was sent to a village far away from his town, to help one of these census officers.

He had never been out of his town and he had never seen any villages; but the pictures of villages in the schoolbooks were always so charming. The village in his mind was a place with green meadows and forests, cold water flowing with a gurgling sound from its wells, a river passing through the middle of village, tweeting birds, flying butterflies, and bleating sheep. Briefly, a village was something like heaven.

When he arrived in the village, he lost all hope. There were no wells, rivers, trees, green colour, birds or flowers. The houses in front of a mountain had no windows and were being scorched under the torrid sun. He wondered what they had been eating and drinking and who was living there. He never learned what they were eating, but they were drinking the Firat River's muddy water. They had to take to the path before sunrise and transport the water with jerrycans perched on donkeys. Just to bring two cans full of water, one family needed to travel 10 km along the path.

Since there was no high school in his town, Vahap needed to go to the city to study. Three friends rented a low and dark room in one of the slum quarters. Of course there was no electricity and no tap water, but just a soil covered roof with small windows.

Not a drop of water came from the tap which was in the garden. Instead, water was being distributed by fire engines every day or two. The three friends learned how to get along with a bucket of water, which the house owner was barely able to get from the firemen.

They accepted water shortage as a faith. They thought it was a normal fact of life, because almost everyone around was living the same way they were living. Although this city had some of the richest water resources in Turkey, the administrative ideas of authorities had not yet matured. It was not common practice to supply

clear and abundant water in those days. Although there was in fact plenty, people were complaining about water scarcity. The community was the victim of disinterest, illiteracy and ignorance.

Finally, our hero began studying in one of Turkey's most distinguished universities. He moved into a dormitory building with perfect drinking water and sewerage systems. At the university he totally forgot what the meaning of a water cut is. He not only had clean water, but also hot water with which he was able to wash his hands and face. When he returned to his home town during the mid-term holidays, washing his hands with stone cold water was like an electric shock.

After graduation, he rented a house in one of the most urbanized areas of Ankara but there was no water. Although Ankara had been the capital city for 50 years already, "half a century," there were still serious water problems. There were plans prepared by foreign consultants to bring a solution, but they could not be applied since there was no money. Urbanization in Ankara meant plundering lands and covering surfaces with concrete wherever possible. In other words, urbanization was seen positively as the combination of human activity and building aggregation.

When our hero finished his studies to be an engineer, and completed a master's degree in water resources engineering, he decided to go further as a result of the realities he had encountered and his feelings about them. He started to work in a public organisation, İller Bank (the Bank of Provinces), which supports municipalities in Turkey in water and sewerage works.

In October 1973 our hero won a scholarship from the World Health Organisation (WHO) and went to the Netherlands to study Environmental Engineering at IHE Delft. During his high quality education on water and sewerage engineering, he also had a chance to analyse the systems around other European countries. In parts of Europe water resources were more polluted than in Turkey. Especially after observing the terribly low raw water quality and the unbelievably good quality of tap water in the Netherlands, he understood that solving the water problems in Turkey, should be easy AS LONG

AS THE ADMINISTRATORS IN TURKEY WOULD UNDERSTAND THE IMPORTANCE OF WATER AND INSIST UPON THE POINT SERIOUSLY.

He found some of the behaviours of some people in the Netherlands refreshing. In certain sections of the university in Delft, foot pedalled taps were being used in order to counteract the devilish water overuse. Yet another example is when one day he received a letter from the water administration in Delft, in which it was written that there would be a water cut-off for two hours in 15 days time, and they were apologizing for that unfortunate event.

IN THE NETHERLANDS, THERE NEVER WERE WATER CUTS WITHOUT INFORMING USERS LONG BEFORE IT HAPPENED UNLIKE IN HIS OWN COUNTRY.

Our hero continued the International Course for Sanitary Engineering 1973-1974 in Delft and finally received his Diploma with Distinction. He also followed some lectures of the European Course for Sanitary Engineering and the Ground Water Endorsement program, for which he received a certificate.

Our hero holds the year at UNESCO-IHE in the Netherlands as the most efficient and beneficial year in his life. Besides learning useful information and studying under the very qualified teachers in UNESCO-IHE, he also learned how to live together with the people who had come from different countries and are culturally totally different from one another. This study was the most profitable experience in his life.

After returning to Turkey, Vahap Balman started to work in İller Bank once again. In those days, there was a very high demand from the municipalities for the İller Bank's services. Since the treatment and sewerage techniques used were relatively new in Turkey, engineers who had studied in Delft were preferred. Besides the work with municipalities, many national and international firms were preparing projects on behalf of the İller Bank. In particular, there were many studies about the sewerage and treatment projects in larger Turkish cities, such as Istanbul, Ankara, Izmir and Adana.

Vahap worked in İller Bank as an Engineer, Chief Engineer, Group Director and

Deputy Head of the Water and Sewerage Department. He took part and managed a lot of water and sewerage projects. Additionally, he educated many young engineers and prepared books and articles to help his colleagues solve the problems they met in their work.

He also supported activities for the establishment of an Environmental Ministry in Turkey. He worked as Head of the Technology Department in the Environmental Undersecretary, which was the foundation of the new Environmental Ministry.

In 1979, he established his engineering firm, NAVA Inc. He worked in this firm as General Director and Member of the Management Board. He participated in the preparation and management of many public water, sewerage and treatment projects all over Turkey. With these projects more than 10 millions of people were served.

Besides this project based work, he also taught in Turkish universities as instructor in water and wastewater engineering. At present he is working as Deputy Team Leader in a large international project executed by three Dutch firms and one Turkish firm, which is called MEMPIS ("Marmara Sea Environmental Master Plan and Investment Strategy").

As was mentioned in different parts of this story, before 1970 the activities in the water and wastewater sector, and more generally in the environmental sector, were completely insufficient in Turkey. Even in the big cities there were severe water shortages and there were no modern sewerage and treatment systems. But today, there is enough clean water even in small villages. There are sewerage systems in 70% of the urban areas. In most of the cities, especially in larger cities, modern treatment plants are performing successfully. There is a big effort to increase the capacities of present systems and also to construct new ones. These are great improvements.

In all these activities there has been a significant share of active UNESCO-IHE alumni. Many alumni of UNESCO-IHE have had important posts in private firms, universities, and in governmental agencies through which they improved the capacities of water and wastewater sectors.

UNESCO-IHE has helped Turkey through capacity building in the water and wastewater sectors and more generally in the environmental sector. As described, administrators in Turkey did not take water shortages or lack of management of water resources as a serious problem. But, now it is different. For example, the Undersecretary of the Ministry of Environment and Forestry, Professor Dr. Hasan Zururi Sarikaya, and the Director General of State Water Works, Professor Dr. Veysel Eroğlu, both alumni, are playing important roles in these sectors today. At present, the management of water resources is governed in part by people very well educated at UNESCO-IHE. Through providing education to engineers and building capacity, UNESCO-IHE has helped countries all over the world find realistic solutions for their environmental problems.

Even so, the professional experience of our hero tells us that the most important need in Turkey is capacity building for the environment. Regarding environmental problems in Turkey, the technical staff of the Ministry of Environment and Forestry should be increased and an effective training program should be implemented in order to increase the capacity of existing technical staff. UNESCO-IHE may be one of the most effective organisations for such a task.

In Turkey, municipalities are responsible for the planning, design and implementation of water and wastewater systems. However, they do not have enough technical and financial capacities. Sometimes they make quick political decisions before having good feasibility studies. For example, in the last weeks, the Ankara Metropolitan Municipality has been planning to supply water to the city from a new resource. But, the hardness of this water is considerably high due to its high carbonate and sulfite content. This raw water can only be treated by membrane technology, which is rather expensive. Our hero believes that there is at least 40% water loss in the existing distribution system. If they would prepare a feasibility report, they could easily see that decreasing water loss in the distribution system would be more realistic.

The second most important problem in Turkey is operation and maintenance of water and wastewater systems. Even most of the well planned, designed and implemented water and

wastewater systems are not properly operated due a lack of well trained technicians.

The need for capacity building is underlined by the developments described in the “EU Integrated Environmental Approximation Strategy” for the years 2007-2023 which Turkey has prepared. The fundamental purpose of this strategy is to establish a healthy and viable environment by taking into consideration the economic and social conditions that prevail in Turkey, and in this regard to establish the harmonization of national environmental legislation with the EC Acquis Communautaire, and to provide for its implementation.

With the realization of this National Strategy, Turkey will be “a country where the fundamental needs of today’s generation as well as future’s will be met, where higher standards of life will prevail, where the biological diversity will be protected, where the natural resources will be managed in a rational manner with an approach of sustainable development, where the right to live in a healthy and balanced environment will be ensured”.

According to the data of 2004, there are 138 treatment plants with secondary and advanced treatment in Turkey. In order to meet the requirements of the Urban Wastewater Treatment Directive 2942, new treatment plants with various capacities are required to be established for settlements having more than 2000 population. The sewerage system in Turkey is 65,635 km long. This figure is required to be 85,200 km by the year 2022. Furthermore, appropriate disposal and treatment methods need to be in place in municipalities and villages having less than a population of 2000 inhabitants. By the year 2020, 90% of the people living in big cities with populations of more than 50,000 will be served by sewerage systems and wastewater treatment plants.

Besides the training of professionals, one of the most important approaches to solving the global water crisis will be more efficient consumption of water. At present, all over the world, water resources and the water supplied to the communities are not meaningfully consumed but are being wastefully used. There is a misunderstanding in underdeveloped parts of the world. Even in the universities, they teach that

“the amount of water consumption is the indicator of civilization and development”. People believe that if one uses more water, he/she is more civilized or developed. One can brush his/her teeth with 1 litre of water. But, it is also possible for the same person to brush his teeth with 20 liters of water. Similarly, one can take a shower by using 20 liters or 100 liters of water. One can flush the toilet by consuming 3 liters or 30 liters of water.

Strictly speaking, there will be a lot of measures needed to decrease water losses and cope with the challenges of coming scarcity. But, the most important measure will be the education of all the people of the world about effective water consumption. Perhaps, the most important role for UNESCO-IHE will be in this world education task. Furthermore, UNESCO-IHE could

play an important role in the preparation of acceptable International Water Usage Standards.

In the future, private firms will continue to take part in the preparation of water supply and consumption through mechanisms such as PPP (Public Private Partnership) and BOT (Build Operate and Transfer) systems. Governmental Agencies, NGOs, Water Authorities, International and Multinational Organizations like the United Nations, World Bank and other private finance organizations must work together to find the best solutions. But, UNESCO-IHE should have a role as a leading organisation and coordinator for international water development, as UNESCO-IHE is a reputable scientific organisation and can play an important role in knowledge and capacity enhancement.

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