World Journal of Fish and Marine Sciences 7 (2): 98-99, 2015
ISSN 2078-4589

DOI: 10.5829/idosi.wjfms.2015.7.2.938

Assessment of Technical and Economic Literatures of Azerbaijan on the Issue of Energy Production from Marine Resources (The 20s and 30s of the 20th Century)

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Abstract: This article introduces the annotation of experts assessment related to the development opportunities of energy sector in the republic in the 20-30s of the 20th century. The researchers-engineers who deal with the investigation of problems in the energy economy sector drew up a plan of division of the territory of the republic into districts related to the production opportunities of the electricity. At the same time the utilization of renewable energy sources was especially brought up to the agenda. The issue of utilization of renewable energy sources maintains its urgency up to now.

Key words: Energy · Power Engineering · Energy Resources · Electric Stations

INTRODUCTION

Beginning from the early 20s, the idea of the usage of alternative energy resources became topical in the technical and economic literatures in Azerbaijan. Among power engineering specialists and economists regularly presenting their scientific works in this direction were Rzazadeh I. [#3(10): 87-93], Zolyataryov T. [#3(10): 77-86], Pankov E. [#6: 103-107.] and etc. One of the newest directions for the solution of the usage of alternative energy resources were the usage of marine resources for energy production. In this regard, first of all, results of latest studies in advanced countries were under ultimate attention and were socialized in periodicals.

First of all, it is necessary to mention that initiatives and projects with the experimental levels were paid a special attention for the development of the mentioned field in Azerbaijan SSR as in the whole Soviet Union. Accordingly, special attention should be paid to the published article published in the "Science and technology" section of "New way" newspaper on November 16, 1926 related to the project of getting the power from marine waters and wastes (the power of the waves). The information was given in the article on the construction of hydroelectric power station with a capacity of 500.000 horse-power by using the power of waves (*fayzan)* (forward flow of the sea water) on the bank of Yasavodka River located in the *Men* region and it was noted that the author of the project, according to this project, hydro engineer Dexter Guper explored the opportunities to utilize the power of waves by making large pools on the area dividing into bay and islands. Dexter offers to construct two pools, one being high and the other one low by constructing multi-barriers between islands and capes. Marine waters are pumped through the canals through feyzan and cazr *(ebb of the sea water)*. Powerful machines are placed between the rafts of two pools which come into operation by a lot of water. The average difference (latazul) between the surfaces is about 5 meters. Generally the water pressure can vary between 4 to 3 meters in 24 hours. Total supply requires funds of 100 million dollars to be spent. But as the implementation of the project is too expensive, it had not been realized yet [New way, # 263, 1926].

On the 6th if March, 1927 an article named "A Factory in the Middle of the Sea" was published in "Yeni yol" (The New Way) newspaper. It would be purposeful to remind the historical facts and thoughts mentioned in the article. It was written in the article that an energy crisis had emerged in the world and in the modern century wealth of every country was measured in accordance with its industrial power. New machineries were invented for further development of industry. It was further written in the article that existence of creation depended on the energy of the Sun, which had been the main source of the energy resources as coal, oil, wood

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and etc. So, humanity had decided to use solar energy, after which two French scientists named Jora Clod and Paul Busheroau had conducted many scientific experiments to use solar energy and shared their results in the Paris Academy of Sciences. They had aimed to produce solar energy from seawater. Below is the experiment they had conducted to test it:

Two quarters of a water container with maximum capacity of 25 liters is filled with water (74 degrees) and the container is connected to another container (which is full of ice) by the use of a pipe. The ice container is connected to the pipe by means of an air pump. At the first stage, air inside the containers is pumped out. In accordance with the rules of physics, water boils and evaporates and transmits to the container with steam. In order to implement this energy, scientists mount a small turbine and connect it to a small dynamo machine by means of a strap. As a result, energy emerged after evaporation of the water gives power to two small electric lamps. By this way, Clod and Bushero conclude that they needed water in 27-30 degrees in great amount. Besides, they need cold water, too. In warm countries, where the temperature of seawater usually is not less than 27-39 degrees, this experiment might give a positive result. In addition, even cold water can be obtained from lower layers of seas (usually, in warm countries, temperature of deep seawater is not higher than 4 degrees). It might be a great source of power, which would initiate an economic revolution in many countries. Implementation of the method of Clod and Bushero in warm countries might enable all machines, railways, tramways, factories and plants to work without damage to ecology through air pollution as a result of energy consumption [New way, # 53, 1927].

Another interesting fact in regard to the mentioned period is that in accordance with a respective instruction of the Presidium of the ANAS (then the Azerbaijani Branch of the Academy of Sciences of the USSR), an expedition consisting of hydro technicians, geologists and topographers was held in order to study the hollows in the Caspian Sea. Members of the expedition were sent to "Garabogaz" on the east coasts of the Caspian Sea. The aim was relating to construction of a new hydro electric power station. The power plant was supposed to be a power source for the plant of chemical products in the region (Garabogazkimya) and other industrial enterprises. There are hollows in the region in the distance of 8 kilometers from the shore (in a lower location in comparison to the shore). Initial investigations revealed that it was possible to conduct wooden pipes to these hollows, after which it would be possible to obtain electricity from seawater in the hollows (50-60 thousand kilowatts approximately) [New way, # 40, 1937].

So, beginning from the second half of the 30s, a new direction in the sphere of alternative energy was on the way to formation in Azerbaijan. In this regard, together with engineers, technicians, geologists and etc., economists also expressed their idea. Naturally, results of observations and experiments in the mentioned sphere played an important role.

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