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Evaluation of Drinking Water Quality for Salem District Using Weighted Product Method

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Abstract: *The quality of drinking water is one of the most important factors affecting human health. However, in many countries, especially developing countries the quality of drinking water is not satisfactory and Poor drinking water quality causes many waterborne diseases. This special issue of Expression and Health focuses on drinking water quality Edited to better understand the implications for public health, thus improving many countries appropriate action may be taken. This editorial introduction, reviewed some recent research, briefly summarizing the main points of each contribution to this issue, then in to increase scientific proposed some research/directions. The articles in this magazine are interesting and this research covers many aspects of the topic, and is meaningful for sustainable drinking water quality protection. Using the correct linear mathematical equation Home selection problems cannot be solved and treated as semi-structured problem a heuristic process is required. Computer-based decision support systems can be used as an alternative to expert decision-making by inexperienced users. This article is about improving decision support systems for the household selection and Presents empirical work. For choosing a house based on weighted product method providing web-based decision support systems with the general objective of the research. As a result of the interview with the respondents, the calculation of choosing this house. In the weighted product method, help people choose the best alternative, Computational results show that the given alternatives can be sorted. The Alternative Parameters is Salem West, Salem South, Yercaud, Attur, Pethanaickenpalayam, Valapady, Sankari, Edapadi, Mettur, Omalur, Kadayampatti. The Evaluation Parameters is PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate. First rank is Pethanaickenpalayam and first rank is Salem West is lowest rank.*
Keywords: *Water Quality, WPM method,*

1. INTRODUCTION

Arsenic poisoning in drinking water is the most famous and a serious case is underway in Bangladesh. Established in the last three decades have been shown to contain concentrations of arsenic. These wells result from the use of (unsafe) surface water to end various infectious diseases Founded on a firm belief. He has achieved that goal. Hence this approach is Widespread in drinking water That led to arsenic poisoning A bitter observation. The scale of the problem is often described by the term "mass poisoning". However, the situation is not perfect, especially in rural areas, this somewhat improved situation, Due to population growth and economic development it can also be damaged by increased water demand and reduced water availability. Hence, between humans, resources and the environment Reconciliation still has a long way to go. Many scientists in drinking water research are working hard. Three aspects of these studies briefly reviewed are: Dewater quality assessment approaches, Water quality factors and water quality management principles. Mining is open pit mining and Underground mining is of two types. Of the ore body Depending on the characteristics, any one of the mining methods is selected. Below the earth's surface when mining is carried out It is called underground mining. Underground mining has many physical, mechanical, and economic and depends on technical parameters. These parameters can be qualitative and quantitative. Therefore, the underground mining method is chosen many attributes come under the decision-making task. Priority Ranking System etc several attribute decision-making techniques are available. Saturation Estimation (PROMETHEE), Graph Theory and Matrix Approach (GTMA). In the proposed work, to select the best underground mining method for an ore body WPM and PROMETHEE were selected. Proposed techniques in the evaluation process are more accurate and Provide optimal results.

2. DRINKING WATER QUALITY

Drinking water quality is important to public health. Despite advances in recent decades, Access to good quality drinking water is an important issue. To water and sanitation by 2030 Ensuring universal access is one of the United Nations' Sustainable Development Goals. Waterborne infections can cause diarrhoea Chronic diseases due to exposure to chemicals in drinking water have Adverse reproductive effects and effects on children's health (eg, neurodevelopment); can lead to other health effects [3]. Drinking water quality in many countries although regulated and monitored, increasing knowledge, of regulated and newly identified pollutants Standards and guidelines on an almost permanent basis leads to the need to review. Drinking water standards are often based on animal toxicity data, having more accurate exposure estimation Robust epidemiological studies are rare. Current risk assessment paradigm often dismisses interactions from exposures to possible synergistic or compound-related exposures to chemicals, particularly in the low-exposure range. Therefore, there is a need for evidence Exposure to compounds of contaminants in drinking water and regarding health effects [4]. Articles on various topics related to drinking water have recently been published in the special journal IJERPH, "Drinking Water Quality and Human Health". On Microbiological Contamination eight sheets, Papers on Chemical Pollution And one is radioactivity. In eight sheets in five microbiological and developing countries were radioactive, But there is no chemical quality. In fact, from industrialized countries all documents related to chemical contamination, Microbial quality in LMICs Explains that more is a priority. However, from various sources, chemical pollution can affect these systems and future research is needed. through urban infrastructure How drinking water should be distributed and To be distributed, under normal circumstances How much water should you drink per day, How to ensure drinking water quality and Like what actions should be taken Governance principles cover many aspects. In coastal areas of Bangladesh Most households have access to safe drinking water Expresses are willing to pay for enhanced access. These community-based studies are useful and Assist in establishing effective drinking water quality improvement programs. Water Quality Management and others there are a few more studies. Water Quality Management and These achievements in management are the water treatment industry and Further accelerating the development of other related sectors. In Water Quality Research to celebrate achievements, to promote their further development, Drinking water quality and On the topic of public health, A special issue was compiled and revealed Published in Health. Twenty-one supplementary works were received for the special issue, and seven more articles A peer-reviewed issue is published in this special issue and Later accepted. The high submission rate of this special issue, Discuss drinking water and its effects on human health indicates that it is a very hot research topic. Will be published in this journal Articles that will be of interest to a global readership We firmly believe, Can contribute a lot to drinking water science and engineering.

3. MATERIALS AND METHOD

By using a weighted product system, engineering faculty can provide the facility to manage merit and student data to determine the best graduate students. By Kiki Yastomi (2015) Research on Commercial Credit Decision Support System. The result of using the Weighted Product (WP) method in this test, for selection of business capital loan applicants Considered by the Bank in making the decision. To solve multi-criteria decision-making problem Developed researchers there are some popular methods, one of them was introduced by Bridgman in 1922 the weighted production method (WPM). WPM is a multi-criteria decision maker has proven to be a very reliable method and up to one hundred criteria were tested for more than three criteria. Choosing a Boarding House, Choosing the right food, Choosing an appropriate learning platform, Diagnosis of goose disease and other similar tasks Several researchers have reported the successful use of WPM to address multiple criteria. Based on these successful works, for individuals who face decision-making difficulties to address home selection.

- Using WPM To create a selection model of a house,
- To calculate and sort recommendation values,
- In a web-based environment to implement.

The weighted product method is one of the MADM problem-solving methods. This method attributes or for a set of criteria evaluates several alternatives, each attribute is independent of the other. A weighted product method to teach attribute estimation uses multiplication techniques. WPM is similar to WSM. Model instead of addition Includes multiplication. Compared to others each alternative by multiplying multiple ratios, One for

each criterion. Each ratio is relevant and is raised to a power equal to the relative weight of the volume. WPM is sometimes called dimensionless analysis because its structure removes any units of measurement. Therefore, WPM can be used in one-dimensional and multidimensional MCDM. Considering the above background, Crop Classification, Crop Yield Modeling, Comprehensive Simple Methods for Water Productivity Mapping (WPM) and the main thrust of this study is to develop protocols and thermal band data and is to use surface energy balance models. This study is for 2006 Using satellite imagery in Central Asia in the Syrdarya River basin in Uzbekistan of irrigated cotton fields within the Calaba study area Focused on WPMs. By a 10 kDa spin organic membrane Equipped with Millipore filtration system WPM suspension ultrafiltration Accumulated twice. Concentrated milk ultrafiltration with permeate solutions Concentrated protein suspension A range of WPM suspensions were prepared by dilution. Ranging from 2.7% to 6.5% (wt/ wt). By increasing the protein concentration of broths, not included in WPM Number of caseins and whey proteins WPM increases proportionally to concentration. Unbound in WPM to remove casein and whey proteins, after centrifugation, an additional slurry was prepared with a 6.8% WPM suspension. Emulsions made with WPM suspension were liquid at 6.8% protein after centrifugation (i.e. not added to WPM after removal of caseins and whey proteins), it is very viscous.

4. RESULT AND DISCUSSION

TABLE 1. Drinking water quality

	PH	TDS	TH	Calcium	Magnesium	Chloride	Sulphate
Salem West	6.80	1350.00	543.00	324.00	423.00	489.00	574.00
Salem South	7.90	1400.00	573.00	529.00	432.00	539.00	583.00
Yercaud	7.80	1278.00	577.00	364.00	462.00	573.00	482.00
Attur	8.30	1398.00	589.00	298.00	482.00	480.00	593.00
Pethanaickenpalayam	7.10	1595.00	689.00	308.00	462.00	593.00	402.00
Valapady	6.90	1537.00	535.00	375.00	498.00	567.00	643.00
Sankari	7.70	1378.00	683.00	398.00	472.00	527.00	530.00
Edapadi	7.40	1462.00	693.00	289.00	482.00	583.00	578.00
Mettur	6.80	1465.00	505.00	389.00	490.00	509.00	583.00
Omalur	7.90	1342.00	598.00	378.00	432.00	490.00	482.00
Kadayampatti	7.00	1492.00	642.00	326.00	467.00	578.00	495.00
	B	**B**	**B**	**B**	**NB**	**NB**	**NB**

Table 1 shows the drinking water quality Alternative Parameters: Salem West, Salem South, Yercaud, Attur, Pethanaickenpalayam, Valapady, Sankari, Edapadi, Mettur, Omalur, Kadayampatti. Evaluation Parameters: PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate.

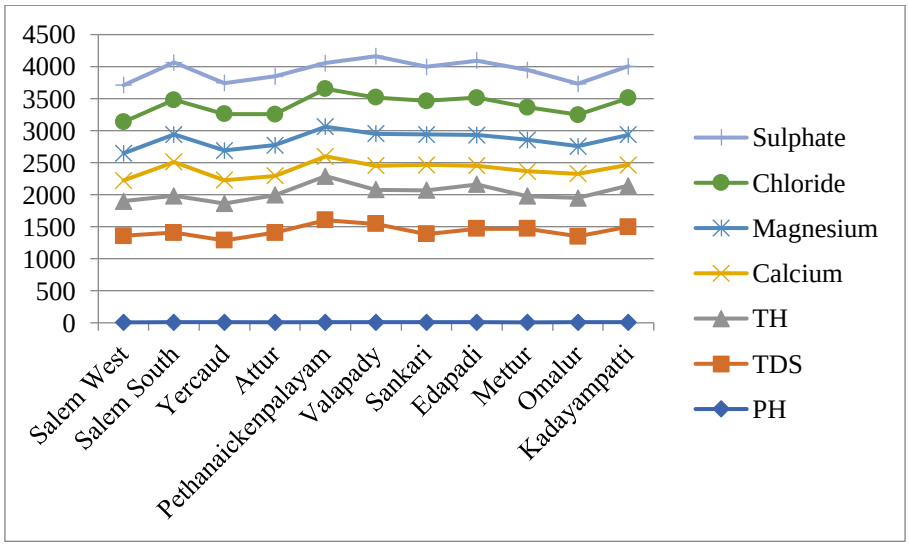

FIGURE 1. Drinking water quality

Figure 1shows the graphical representation Alternative Parameters: Salem West, Salem South, Yercaud, Attur, Pethanaickenpalayam, Valapady, Sankari, Edapadi, Mettur, Omalur, Kadayampatti. Evaluation Parameters: PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate.

TABLE 2. Performance value

Salem West	0.81928	0.84639	0.78355	0.61248	0.84940	0.82462	0.70035
Salem South	0.95181	0.87774	0.82684	1.00000	0.86747	0.90894	0.68954
Yercaud	0.93976	0.80125	0.83261	0.68809	0.92771	0.96627	0.83402
Attur	1.00000	0.87649	0.84993	0.56333	0.96787	0.80944	0.67791
Pethanaickenpalayam	0.85542	1.00000	0.99423	0.58223	0.92771	1.00000	1.00000
Valapady	0.83133	0.96364	0.77201	0.70888	1.00000	0.95616	0.62519
Sankari	0.92771	0.86395	0.98557	0.75236	0.94779	0.88870	0.75849
Edapadi	0.89157	0.91661	1.00000	0.54631	0.96787	0.98314	0.69550
Mettur	0.81928	0.91850	0.72872	0.73535	0.98394	0.85835	0.68954
Omalur	0.95181	0.84138	0.86291	0.71456	0.86747	0.82631	0.83402
Kadayampatti	0.84337	0.93542	0.92641	0.61626	0.93775	0.97470	0.81212

Table 2 shows the performance value for Drinking water quality. Alternative Parameters: Salem West, Salem South, Yercaud, Attur, Pethanaickenpalayam, Valapady, Sankari, Edapadi, Mettur, Omalur, Kadayampatti. Evaluation Parameters: PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate.

TABLE 3. Weight

Salem West	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Salem South	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Yercaud	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Attur	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Pethanaickenpalayam	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Valapady	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Sankari	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Edapadi	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Mettur	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Omalur	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Kadayampatti	0.25	0.25	0.25	0.25	0.25	0.25	0.25

Table 3 shows the Weightages used for the analysis. We take same weights for all the parameters for the analysis.

TABLE 4. Weighted normalized decision matrix

Salem West	0.95139	0.95916	0.94084	0.88465	0.96001	0.95294	0.91481
Salem South	0.98773	0.96793	0.95358	1.00000	0.96508	0.97641	0.91125
Yercaud	0.98459	0.94611	0.95524	0.91078	0.98142	0.99146	0.95564
Attur	1.00000	0.96758	0.96016	0.86634	0.99187	0.94852	0.90739
Pethanaickenpalayam	0.96171	1.00000	0.99855	0.87352	0.98142	1.00000	1.00000
Valapady	0.95487	0.99078	0.93736	0.91758	1.00000	0.98885	0.88921
Sankari	0.98142	0.96410	0.99637	0.93134	0.98668	0.97093	0.93323
Edapadi	0.97171	0.97847	1.00000	0.85973	0.99187	0.99576	0.91322
Mettur	0.95139	0.97897	0.92393	0.92603	0.99596	0.96253	0.91125
Omalur	0.98773	0.95774	0.96381	0.91941	0.96508	0.95342	0.95564
Kadayampatti	0.95831	0.98345	0.98107	0.88601	0.98406	0.99362	0.94930

Table 4 shows the Weighted Normalized Decision Matrix. Alternative Parameters: Salem West, Salem South, Yercaud, Attur, Pethanaickenpalayam, Valapady, Sankari, Edapadi, Mettur, Omalur, Kadayampatti. Evaluation Parameters: PH, TDS, TH, Calcium, Magnesium, Chloride, Sulphate it is also Weighted Normalized Decision Matrix value.

TABLE 5. Preference Score and Rank

	Preference Score	**Rank**
Salem West	0.63564	11
Salem South	0.78284	3
Yercaud	0.75360	5
Attur	0.68709	10
Pethanaickenpalayam	0.82327	1
Valapady	0.71549	8
Sankari	0.78498	2
Edapadi	0.73727	6
Mettur	0.69612	9
Omalur	0.73711	7
Kadayampatti	0.76040	4

Table 5. Shows the Preference Score value Salem West=0.63564, Salem South= 0.78284, Yercaud=0.75360, Attur=0.68709, Pethanaickenpalayam=0.82327, Valapady=0.71549, Sankari=0.78498, Edapadi=0.73727, Mettur=0.69612, Omalur=0.73711, Kadayampatti=0.76040. First rank is Pethanaickenpalayam and first rank is Salem West is lowest rank

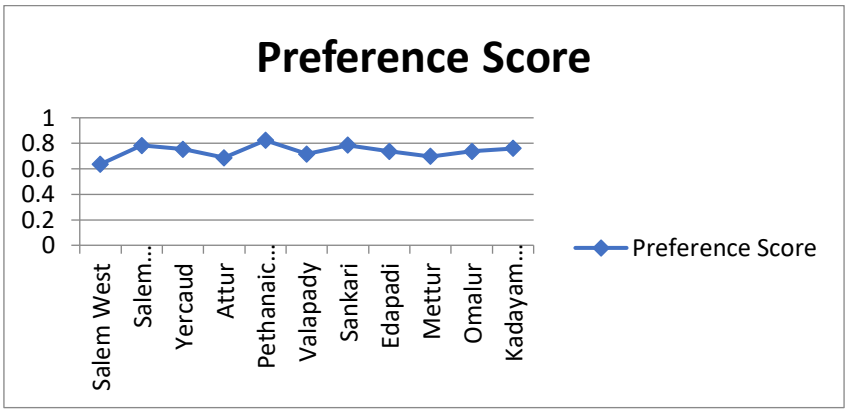

FIGURE 2. Preference score

Figure 2 shows the preference Score for Pethanaickenpalayam =0.82327 is showing the highest value for preference score and Salem West =0.63564 is showing the lowest value.

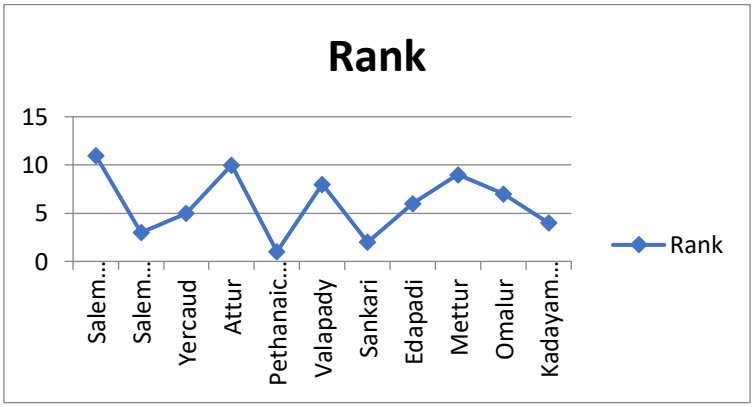

FIGURE 3. Drinking water quality rank

Figure 3. Shows the final result drinking water quality. Pethanaickenpalayam is got first rank and Salem West is got lowest rank

5. CONCLUSION

The papers discuss methods for obtaining drinking water quality. One is in Quebec, Canada focused on manganese, and another for pharmaceuticals in drinking water in Minnesota, USA Focused on screening values. The latter developed the method used to obtain guidelines in Minnesota Especially considering the high exposure of young children to water chemicals. Finally, the article on radioactivity provided an explanation. In the end, despite many obstacles on important topics like this, the co-authors were content to collect 20 papers from global groups. Various and our little experience demonstrates the importance and their potential health effects. WPM is very thermally stable in solution, but when adsorbed on lipid droplet surfaces. Through the interaction of neighboring WPM-capped lipid droplets, a gel is formed. Their small size and Due to strong surface-active properties, Caseins for adsorption on lipid droplet surfaces Compete with WPM. Therefore, by increasing the casein content in the broth Modification of on the lipid droplet surface WPM by casein Using this reasonable approach, WPM and low number By using casein Thermal stability of emulsions can be improved thermally stable whey protein-rich broths can be obtained. Caseins preferentially adsorb to lipid droplet surface and Gelation induced by lipid droplets vs The broth stabilizes. WPM is released in a continuous phase; There they are thermally stable over a large protein concentration range. First rank Pethanayakkanpalayam and first rank Salem West are at the lowest rank.

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