

The Research Proposal

Make sure you fill out completely *all* the information in the sections below. Failure to complete these sections fully and honestly may incur a loss of points. Responding to some questions with “no” or “n/a” or “I don’t know yet” *is* acceptable; however, leaving any responses blank is not. If you do not understand any questions you are encouraged to contact your instructor.

Section 1

Name: Gayah Alzarooni

Your Major: Civil Engineer

Section 2

On a scale of 1 to 10, how confident are you *now* feeling about writing for this course? Explain any change in your scoring from the first assignment.

1/9.2

Section 3

Final grade you received from your previous assignment (Research Plan). How do you feel about this grade? If you lost points on the first major assignments, then **where** and **why** did you lose points, and what have you done to address the issue? Write out your response in complete sentences below.

1/100

Section 4

Based on your last assignment and the lessons you have received so far in ENG 204, what **three** things have you given extra care and attention towards for this assignment? Make sure your three points are updated and distinct from your previous submission

1/Grammar mistakes since most of the professors comment were based on it (in my previous assignment).

2/Formation and the structure of the content since there are various rules and “formulas” to follow to fulfil the requirements which are mentioned in the rubric, template, guide, and the course book.

3/ Wording I choose in my paper because it is the most thing I suffer in and most of the professor’s comment is relating to it.

4/ The sentence structure since I sometimes do write a really long sentence which usually overlaps between ideas in one shot.

Section 5

Working Topic: (e.g., smoking)

1/ Groundwater

Working Research Question: (e.g., Is smoking beneficial?)

1/ Should groundwater be the main source for drinking water in United Arab Emirates?

Working Thesis: (e.g., Smoking is beneficial.)

1/ Groundwater should be the main source for drinking water in United Arab Emirates.

Working Secondary Questions

You may not have *all* your secondary questions yet – but have a go at writing what some may be. At least, you'll get some feedback from your instructor. Remember that secondary questions are W-questions that usually follow "if so ..." and/or "If not ..."

(Examples: What are the benefits of smoking?)

1/ Is the groundwater, in United Arab Emirates specifically, is the cleanest, highest quality, and healthiest water?

2/ Can groundwater have advantages on the United Arab Emirates' economy?

3/ Can the process of extracting groundwater have advantages on the United Arab Emirates' environment?

Working Counter Theses: (e.g., 1/ Smoking is not beneficial. 2/ Smoking may have some benefits, but it has more drawbacks. 3/ Smoking may be beneficial but only when combined with other practices. 4/ Smoking may be beneficial for some people but not for others. Etc.)

1/ Groundwater should not be allowed as a source for drinking water in United Arab Emirates

2/ Groundwater should be allowed to be used as the source for drinking water in United Arab Emirates only for emergencies

3/ Groundwater should be the main source for drinking water in United Arab Emirates only in winter season.

Working Supporting Arguments: (e.g., [Smoking is beneficial because ...] 1/ smoking makes you look cool. 2/ smoking helps you lose weight.)

1/ Groundwater quality is healthy because the probability of it to be contaminated is low comparing to other sources such as recycled water and water body (seas, lakes, or reservoirs)

2/ Groundwater can help in increasing the gross domestic product of the country as the water does not evaporate leading to more products, more consumption, and more money to the country.

3/ The equipment required are in low cost

4/ Groundwater has less sodium comparing to other sources.

5/ groundwater extraction can help prevent environmental disaster such as floods

Working Counter Arguments: (e.g., [Smoking is *not* beneficial because ...] because 1/ smoking causes serious diseases. 2/ cigarette smoke is very smelly. 3/ smoking not only harms the smoker, it also harms other people in the environment of the smoker.)

1/ Groundwater can cause environmental issues such as land subsidence.

2/ The source of groundwater is not guaranteed compared to other resources as the groundwater is limited and recharging it can be challenging in UAE.

3/ Groundwater can be expensive to consumers compared to other sources of drinking water in the market, which can deter consumers and lead to less profit for the company.

Working Refutations/Rebuttals/Acknowledgements of Counter Arguments:

(e.g., For “Cigarette smoke is very smelly,” I have found a study showing that most people actually like the smell of cigarette smoke on their clothes. I have also found an article describing a company that makes cigarette smoke room fresheners.)

1/Government restriction and engineering solutions can help in maintaining groundwater.

2/ Engineering solutions can help prevent environmental issues.

3/ Accessing groundwater is not necessarily the reason why it is expensive. It can be the company’s other aspects such as due to the need of covering the costs of labors in the company or because the branding of the company requires to raise the price up.

Write Your Paper Below

Begin your paper at the start of the next page. Note that APA Level 1 headers have been provided. Write appropriate paragraphs within these prescribed areas. Remember to leave the rubric at the end of the paper.

Introduction

In this paper, I argue that groundwater should be the main source for drinking water in the United Arab Emirates (UAE). In this paper, I define groundwater as any water that was extracted from an underground area. The area where groundwater is located is called an aquifer (Plummer, Carlson, & Hammersley, 2016). As the quality of groundwater varies between different areas, this paper focuses on the UAE's groundwater (Ouyang et al., 2014).

I support my position on groundwater with the following three arguments. First, I argue that the groundwater in the UAE is the cleanest, highest quality, and healthiest water. According to Ahmed et al., 2019, samples of Dubai's groundwater were examined, and these samples were found to have high minerals. Waters with high minerals have multiple of beneficial elements to the humans' body such as it contains magnesium, which can be beneficial to patients with heart and blood pressure issues (Joffres et al., 1987). Second, I argue that groundwater can also be beneficial to the UAE's economy. A survey conducted by AlBlooshi et al. (2020) illustrates that 68% of citizens of Al Ain agreed that farming has been much easier and more profitable as they have been using groundwater for farming. As the production increases, more products will be sold, and it will increase the gross domestic production of the country (GDP) (Ref.). Finally, I argue that the procedure of extracting groundwater can have some advantages for the UAE's environment. Because of global warming, precipitation has been "intense," which can cause floods and other environmental disasters (Trenberth, 2011, p. 1). Since groundwater's major source is the rain or any other form of precipitation, extracting groundwater to have space for new recharging water can help the country to prevent floods or other catastrophic events (Ref.).

I also consider alternative positions towards groundwater. These positions include groundwater can cause multiple environmental issues (Ref.), groundwater is limited and not guaranteed to provide water (Mohammed, 2018), and groundwater can be expensive to consumers compared to other drinking water in the market (Ref.). In the paper, I refute such claims by, for example, illustrating some of the in practice governmental restrictions that can

help in maintaining groundwater (Dubai municipality, 2020), demonstrating some of the engineering solutions that can help maintaining groundwater and prevent environmental issues (Ref., Ref.), and explain how groundwater is not necessarily the reason why it is expensive (Ref.).

This paper is important because it concerns the public health of UAE citizens. To clarify, there are several types of drinking water available in the market such as groundwater, recycled water, and distilled water. However, some people may underestimate the importance of the source of the water they consume, and they may be unaware of their side effects. I conclude my paper by recommending the consumers some of the groundwaters provided in the market.

Discussion of Sources

Source 1

Ahmed, I., Tariq, N., & Al Muhery, A. (2019). Hydrochemical characterization of groundwater to align with sustainable development goals in the Emirate of Dubai, UAE. *Environmental Earth Sciences*, 78(1).

The authors of this article are employees in Dubai Municipality, a Dubai governmental institution who are responsible for health in Dubai's environment. The authors are specifically in the "Natural Resource Conservation" sector. This article was in the *Environmental Earth Sciences* journal. *Environmental Earth Sciences* is an international "multidisciplinary" journal published by Springer. Springer is a publisher with 2,900 published journal articles. This article is about the characteristics of the groundwater in Dubai and what are the goals the institution is willing to achieve in the future. The article starts with general background of the current situation of the groundwater in Dubai. The authors displayed their experimental results of the groundwater characteristics such as the chemistry behavior of the groundwater, the ground environment effect on the groundwater, the climate of the city in the groundwater, and the "biological" particles in the groundwater. The article

illustrated some of the institution's work to reach to their goal such as protecting areas to prevent groundwater depletion. In my paper, I will use this source in the quality of the groundwater argument section of the supporting argument. It will be used to show the audience that the groundwater has been examined and verified to be safe and healthy by experts who are working in governmental sector. I like the coherency of the article because it starts in general and, throughout the article, the author gets more into detail of the groundwater till they reach to how the atoms in the groundwater behave. However, the article is professional, so it is very precise and is written by scientific language such as advanced formulas and complicated charts. Therefore, it may be hard for some of the readers to grasp their content.

Source 2

Al Blooshi, L.S., Ksiksi, T.S., Aboelenein, M., & Gargoum, A.S. (2020). The impact of climate change on agricultural and livestock production and groundwater characteristics in Abu Dhabi, UAE. *Nature Environment and Pollution Technology*, 19(5), 1945-1956.

This article was written by four authors, most of whom are professors and Ph.D. students in the United Arab Emirates University (UAEU). UAEU is known as the oldest university in UAE, and it is first ranked in education ranking in UAE in 2021. The main author of this article (Alblooshi) has published ten articles, Ksiksi has published sixty articles, Aboelenein has published three articles, and Gargoum has also published three articles. This article is based on the experiment conducted by the authors. The aim of the experiment is to investigate on the climate change effect on both agriculture and groundwater. However, it also discussed the relationship between the agriculture and the groundwater. The experiment was conducted in Abu Dhabi (which has 87% of the country's land), Alain, and AL Dhafra. The article has investigated on multiple of aspects such as a

survey conducted on farm owners and farmers elucidates how groundwater is responsible for the agriculture fluctuations. In my paper, I will use this source in groundwater's impact on the country's economy section of the supporting argument. It will be used to demonstrate groundwater's contribution to the country's economy by improving agricultural productions. I liked this journal article because it presents the data both by charts and as a text, which provides multiple of options to the audience. However, regarding the structure and the organization of the article, I would prefer to read from an article that directly continues on the next page, not on the other side of the same page.

Source 3

C., P. C., Carlson, D. H., & Hammersley, L. (2016). *Physical geology*. New York, NY: McGraw-Hill.

The main author (Charles Plummer) wrote this book based on his 45 years of experience in geology (since 1958), and he published over thirteen works in total. McGraw Hill has been an educational publisher for school, undergraduate, and post graduate students since 1888. The publishers provide their services for more than 135 countries around the world. This book contains 23 chapters, and it is about the Earth's structure, which are the geosphere, hydrosphere, atmosphere, and biosphere. In the book, there are seventeen chapters that are dedicated to the geosphere of the Earth, and four chapters are about the hydrosphere of the Earth. This book was published in 1979, and the last edition (the fifteenth) was published in 2016. This book has been a main source for more than one million students in more than five thousand courses related to Geology. Currently, this book is used by the civil engineering students in their geology courses in American University of Sharjah and other universities. In my paper, I will be using this source in my introduction to briefly mention the important background of the groundwater. In my paper, I will use this source in the groundwater's quality section of the supporting argument. The book will be used as an

evidence to illustrate that the environment where groundwater is located is safe and can prevent groundwater contamination. I like this book because although it is dedicated to geology, the authors were generous as they tried to provide more than just geology knowledge. In addition, the book was very precise. For example, there is a chapter for each aspect of the earth structure instead of just having four chapters that generally discuss the four main structures of the earth.

Source 4

Dubai Municipality (2020). Technical guidance for groundwater protected areas in Emirates of Dubai 2020.

Dubai Municipality is one of the oldest governmental institutions in the UAE, and it was established by the prince Rashid bin Saeed Al Maktoum in 1954. It is a governmental agency responsible on the overall quality of Dubai such as the urban planning, the environmental safety, and the quality of the constructions in the city. This guide is mainly about the institution's mission to save the groundwater in Dubai and the groundwater protected areas (GPAs). The guide starts by introducing the audience on how the groundwater is extracted in Dubai and where it is mainly used. Moreover, the article mentions some of the laws in UAE for whoever disturbs the plan of protecting the groundwater. Furthermore, the article mentions some of the areas in Dubai where groundwater extraction is prohibited, so the country has emergency backup water supply. In addition, the article mentions the guideline on how the groundwater should be supplied to prevent any contamination of groundwater loss. In my paper, I will use this source in the groundwater limitation to supply the country counter argument. It will be used to acknowledge the audience that although the groundwater is not guaranteed, there are governmental restrictions that can prevent depletion of the groundwater. In my opinion, the content of the article was easy to comprehend by just scanning. However, regarding the

coherency, I would recommend attaching the figures directly below the paragraph of its content.

Source 5

Kiss, S. A., Forster, T., & Dongó, Á. (2004). Absorption and effect of the magnesium content of a mineral water in the human body. *Journal of the American College of Nutrition*, 23(6).

The authors are professors in University of Szeged, medicine and cardiology department. The Journal of the American College of Nutrition is an organization that publishes articles about nutrition and metabolism. In addition, this article has been cited by nine other journal articles. This article was based on an experiment on how the magnesium affects human body. Human samples drank 1.5 liter of magnesia and the authors have studied the samples' body. The authors recorded the data and concluded the article by informing that magnesium does have benefits for humans. In my paper, I will use this source in the quality of the groundwater section of the supporting argument. Since this article illustrates the benefits of the magnesium to the human's health, and the groundwater contains magnesium, this source can help to prove that groundwater is healthy and contains beneficial elements. I like this article because although it is a scientific research, the authors managed to use words that helps the reader to understand their content. In addition, the authors were clear enough in their article such as they defined what is the healthy human aged.

Source 6

Mohammed, M. M. (2018). Climate changes impacts on groundwater recharge in UAE. *Epic Series in Engineering*, 3, 1424-1434.

The author of this article is a professor of water resources and environmental engineering in the United Arab Emirates University, the oldest university in UAE. Epic is a

publisher with seven series for different disciplines which are computing, biological science, health science, language and linguistics, education science, interdisciplinary research, and civil engineering. In addition, Easy chair company, the founder of Epic publication series, has networks and collaborated with multiple of organizations such as the institution of electrical and electronic engineering computer society, Fraunhofer society, and several universities such as Oxford university and Cambridge university. The article is mainly about the global warming impact on UAE's recharging groundwater. The article is based on a study conducted by the author in the North-East of Abu Dhabi. The results of the experiment shows that global warming contributed to reduction of recharging groundwater. For example, global warming increases the temperature of the air and causes evaporation, so less water will be available to recharge the groundwater. In my paper, I will be using this source in the groundwater is limited section of the counter argument. This source will provide evidence that groundwater source does not guarantee to be enough for the nation to depend on it. I liked the article because the author used the hedging phrases. It illustrates that the author is honest in his article. For example, the author had an entire paragraph dedicated to inform the audience that estimation of groundwater recharging and discharging rate may not be very accurate. However, the author has mentioned the consequences of global warming on precipitation only in the introduction, and I would prefer for the author to further analyze his recorded data.

Source 7

Ouyang, Y., Zhang, J.E. & Cui, L. Estimating impacts of land use on groundwater quality using trilinear analysis. *Environ Monit Assess* 186, 5353–5362 (2014).

The main author (Ying) is a research hydrologist and environmental scientist since 1991. Environ Monit Assess is an international journal publisher. They publish articles about the environment and the environmental impacts on human species articles. This article is

about how the human's and other species' practices on the lands can affect the groundwater. The experiment was in agricultural, septic tank, forest, and wastewater areas. The authors' study was based on the compounds produced by the practices, which contaminates the groundwater. In conclusion, the study showed that nitrate and nitride (from the nitrogen species) and Particulate Phosphorus (PP) are the most compound rate in the groundwater. In my paper, this source is used in the introduction. It indicates why my thesis is specifically in UAE, not globally. I like this article because of its coherency. The organization of the content helps the audience to comprehend easily, and the figures were displayed directly below the paragraphs. In addition, the content of the article was excellent, especially in the result and the conclusion where the authors have extensively analyzed on the results.

Source 8

Trenberth, K. (2011). Changes in precipitation with climate change. *Climate Research*, 47(1), 123-138.

The author is a senior scientist in the National Center of Atmospheric Research (NCAR). His expertise is on climate science, hydrological cycle, energy cycle, and climate observation and analysis. He has published over 567 publications, including 281 journal articles. The article is about how global warming is affecting precipitation. The article mentions the global warming rate of the Earth and the precipitation rate simultaneously. The author demonstrates the directly proportional relationship between global warming and the precipitation. For example, global warming causes higher rate of water evaporation and changes the energy cycle in precipitation process, so it can have a tremendous impact on the precipitation rate. The author ended his article by mentioning some of the environmental issues associated with the precipitation increasing rate such as floods. In my paper, I will use this source in the environmental benefits section of the supporting argument. It will be used to illustrate that the globe is facing a high rate of precipitation, which can lead to floods. Since groundwater extraction decreases the amount of water and will have more space in the

aquifer, the precipitation can recharge the groundwater. Therefore, water extraction can help in preventing floods. This article is my least favorite article. Although the data was very precise, the author was not clear to his audience on certain things such as his experiment locations were labelled as stations rather than the actual name of the area.

Outline

- Introduction:
 - Thesis and definition
 - Groundwater should be the main source for drinking water in United Arab Emirates
 - Reasons why I support this position, include brief explanation of the support argument
 - Quality of the groundwater
 - Environmental aspects caused by the process of extracting the groundwater
 - Groundwater contribution to the UAE's economy
 - Problems, issues, and alternative views associated with the thesis, include brief explanation on counter argument and its refutation
 - Groundwater limitation
 - Environmental crisis associated with groundwater extraction
 - Consumers and companies towards the groundwater prices in the market
 - Importance and conclusion
 - concern on the public health of UAE citizens
- Background:
 - General knowledge on groundwater quality
 - Environment surrounding the groundwater and underground quality in UAE
 - How groundwater is extracted

- Main Argument:
 - Argument 1: Quality of the groundwater
 - Minerals in the water
 - Sodium
 - Magnesium
 - Argument 2: Environmental aspects caused by the process of extracting the groundwater
 - Help in preventing environmental catastrophes such as floods.
 - Argument 3: Groundwater contribution to the UAE's economy
 - Agricultural aspects
 - GDP of the country
- Counter Argument:
 - Counter argument 1: Groundwater limitation
 - Cannot be recharged easily in UAE
 - Climate change
 - Environmental crisis associated with groundwater extraction
 - Causes land subsidence.
 - Consumers and companies towards the groundwater prices in the market
 - Repels consumers
 - Less profits for the companies
- Refutation on the counter arguments:
 - Counter argument 1: Groundwater limitation
 - Civil engineers (specifically water resource engineer and geotechnical engineers), chemical engineer, and mechanical engineer solutions to recharge groundwater.
 - Counter argument 2: Environmental crisis associated with groundwater extraction

- Civil engineering (specifically environmental engineers) solutions
- Governmental rules in practice
- Counter argument 3: Consumers and companies towards the groundwater prices in the market
 - Costs may not be due to the groundwater itself
- Conclusion
 - Restate the thesis (long thesis/ thesis statement)
 - Groundwater should be the main source for drinking water in United Arab Emirates
 - Summarize main arguments
 - Supporting arguments
 - Counter arguments
 - Rebuttal of counter arguments
 - Suggestions
 - Groundwater provided in UAE's market

References

- Ahmed, I., Tariq, N., & Al Muhery, A. (2019). Hydrochemical characterization of groundwater to align with sustainable development goals in the Emirate of Dubai, UAE. *Environmental Earth Sciences*, 78(1).
- Al Blooshi, L.S., Ksikisi, T.S., Aboelenein, M., & Gargoum, A.S. (2020). The impact of climate change on agricultural and livestock production and groundwater characteristics in Abu Dhabi, UAE. *Nature Environment and Pollution Technology*, 19(5), 1945-1956.

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Dubai Municipality (2020). *Technical guidance for groundwater protected areas in Emirates of Dubai 2020*.

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Trenberth, K. (2011). Changes in precipitation with climate change. *Climate Research*, 47(1), 123-138.

Checklist

Before submitting, write “YES” for each of the items below. If this section has not been completed in full then your paper will need to be resubmitted as LATE (incurring the usual 10% late penalties).

1/ I have carefully read *out loud* my entire paper and corrected issues where appropriate.

yes

2/ I have named the file for submission as follows: Research Proposal [my name]

For example: Research Proposal Philip Michael McCarthy

yes

3/ I have read the rubric and guide, and included all the information required in the pages above.

yes

4/ I have pressed spellcheck/grammar check and corrected any text as appropriate.

yes

5/ I have set my WORD document to all the specified proofing requirements, and I have corrected my test accordingly. If not, I have contacted my instructor for assistance.

yes

6/ The file I am submitting is a Microsoft Word document.

yes

7/ I have carefully checked my paper to ensure there are *no* examples of any form of plagiarism. I fully understand what these forms of plagiarism are and I realize fully that any examples of plagiarism will have severe consequences (including *but not limited to* a zero grade, an F for the course, a formal report to administration, and/or having to write a completely new research paper on a different topic). I further confirm that I have had ample opportunity to discuss issues of plagiarism with my instructor and that any and all of my questions have been addressed.

Yes

8/ All work submitted in this paper is my own. No other person was involved in any of the actual writing of this paper. If I received ANY help from ANY other source, I have emailed my instructor to detail ALL the support that I received.

yes