

Example of how mechanical engineers fixes the shortage of fresh water report

[Business](#), [Management](#)



\n[[toc title="Table of Contents"](#)]\n

\n \t

1. [Background and rationale](#) \n \t
2. [Rationale:](#) \n \t
3. [Aim](#) \n \t
4. [Results](#) \n \t
5. [Discussion](#) \n \t
6. [References List](#) \n

\n[/toc]\n \n

Background and rationale

Background

Water is an essential substance for the life of human beings on earth; however lack of clean and fresh water for use because of poor sanitation and lack of water purification systems causes the significant number of deaths. More than 800 million people do not have access to fresh drinking water as per the report by the Millennium Development Goals in 2012. The world's population is growing at a faster rate. Statistics shows that by mid-century, nearly 2 billion people will not have access to safe drinking water (Schilling 2013). The growing population, changing industrial and agricultural practices, climate changes, and urbanization contributes to changes in the status of national water resources. According to Beaulieu (2010), freshwater shortage affects many regions within the United Kingdom that requires integrated solution for sustainable freshwater management. Mechanical engineers are able to fix the shortage of freshwater in the world.

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Rationale:

Shortage of freshwater will continue to be an issue affecting most households unless the government takes a quick action. Water resource management authorities have failed to take advantage of natural processes used to protect and harness freshwater because poor measures are employed in catchment areas (Royal Geographical Society (with IBG) 2012). Mechanical engineers are equipped with knowledge and skills for harnessing water from different sources and purifying it using technologies and equipment. The following research is important in ensuring the public understand different methods used by mechanical engineers to solve the problem of freshwater shortage in the universe.

Aim

The main aim of the following research is to find out how mechanical engineers solve the issue of freshwater shortage.

Method:

The report is a study on the methods used by mechanical engineers to solve the problem of the freshwater crisis in the country. The study will utilize a qualitative research design to collect information from a selected team of mechanical engineers. The qualitative study will assist in recording data from respondents and making a general analysis. Limited number of participants will be utilized; hence, the data collected will be generalized. During the data collection process, the researcher will aim at establishing main engineering approaches used by mechanical engineers in solving the problem of fresh water shortage in the United Kingdom. Additionally, secondary data will also

be acquired from textbooks and online sources. After all the data is collected, the research team will analyze each response separately to come up with a general data.

The study will be carried out in the United Kingdom. The UK was singled out because it experiences the highest rate of fresh water shortage due to the presence of few freshwater supplies. Engineers at the Water Resource Management Department will make the respondent to the questionnaires and surveys. The study will also seek information from mechanical engineers from other sectors dealing with water management. A total of 50 mechanical engineers will form the respondent. The respondents will be split into groups of 10 Engineers depending on their skills and qualifications.

The research aim will be achieved by collecting information from mechanical engineers. The main research instruments that will be utilized are questionnaires and surveys. Each respondent will be given a set of questionnaires (see appendix I) and one survey. The questionnaires will test the knowledge of the engineer towards fresh water shortage solutions.

Results

Figure 1: A pie chart representing results from study questionnaires

Discussion

Mechanical engineers should work on solutions to challenges of freshwater shortage. In the modern and advanced world, engineers should be able to come up with technologies to solve the problem of freshwater shortage.

Water treatment technologies exist that help purify water and make it safe for human consumption. Improving water systems is the primary solution to

overcoming the chronic shortage of freshwater in the world. However, the current desalination processes invented by engineers is not common in most households because the process is expensive and utilizes a lot of energy. The most affected population by the shortage of freshwater supply are the poor people, and they might not be able to afford expensive systems. On the other hand, mechanical engineers have invented the humidification-dehumanisation (HD) process for desalinating ocean water. The process needs more improvement because it is not efficient enough to supply water for a bigger population. Engineers are in the process of improving the design for HD process by linking the system to renewable energy sources to deliver fresh drinking water for commercial use.

According to Davidson, Kitzinger & Franke (1998), the deterioration of the natural environment and deprivation of the Ozone layer contributes to major shortage of freshwater, calling upon professionals to develop methods of harnessing vast resources of the clean environment. Engineers try all possible means to solve the problem of freshwater shortage in the world. Poor water management infrastructures are associated with the current shortage of freshwater supply. Water management bodies use traditional methods of monitoring the flow of water that are characterized by many errors. New computerized systems should replace traditional systems because they are capable of detecting problems and notifying the relevant personnel on time. Mechanical engineers have introduced water-tracking devices that monitor pressure and flow of water in pipes across the entire water supply system.

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Appendix I: Study questionnaires

Do you think there are fresh water crisis in the country?

What are the major reasons behind shortage of fresh water?

What role do you play as a mechanical engineer to eradicate the shortage?

What are the main engineering solutions used to purify water to make it safe for human consumption?

What challenges as an Engineer do you face in implementing these solutions?

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Give a recommendation depending on the skills and experience you have gained as a mechanical engineer.