

The Water crisis and Desalination

A critical solution for the water scarce

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The water scarce is one of the causes for poverty in dry climate areas. This report aims to suggest a solution for water scarce and stamp out the poverty. The situation surrounding the water scarce is analyzed at the first half of the report. The cause for the problem, historical background, current situation and varieties of influences is discussed. Then, the solution for the problem, Reverse Osmosis Desalination Technology, is suggested and its adaptation into developing countries is observed in the last part.

1. Water as a critical resource

Water is a critical material for the life today. Water is not only necessary for satisfying minimum quality of life such as drinking, cooking, bathing, cleaning and toilets etc, but also important resource for industry and agriculture. Yet, some area of the world, mostly developing countries, faces severe scarce of water while we, already developed area, enjoys life supported by plenty of available water.

At the moment, some 20% of the world population, 1.2 billion people, does not have access to clean water and 3 billion do not have clean sanitation system. Over 10% of death in middle of Africa and sub-Saharan countries including Mali, Niger, Chad, Ethiopia and Somalia and South Asia including Pakistan and Afghanistan. Diarrhoeal diseases, trachoma, malaria and lymphatic infections are major diseases causing death at water scarce area.

2. Cause of the issue

The cause of the issue could be divided into two factors, human and geological. First, human factor means mainly population explosion especially at Middle East and North Africa where were already facing the water scarce for some extent. As population of the area increases, demand for agriculture increase and industry grow rapidly. Water is also necessary to satisfy everyday needs such as bath, toiletry and drinking. Therefore, water supply is often strained by increasing population. Overuse of water resource exacerbates the issue. Unplanned industrialization and spreading of irrigated farming are direct causes for damage on water basin. Typical case study can be found at Aral Sea in Soviet. Moreover, water supply system has fatal weakness. Some 30-60% of water is lost in the process of supplying water in water pipes. This is due to lack of skilled mechanics and budgets. Even these water pipes, however, are not reached for low-income population. This unequal supply of water distress their lives, increase extra effort to obtain water and cause health problems such as epidemics.

Geological background is another factor. It mainly means spread and difference of precipitation and amount of aquifer. Middle East, Northern Africa and Sub Sahara area are not blessed with precipitation. Thus, they had been relying on aquifer for water needs. Yet, aquifer is running out. Locals have to dig deeper and deeper well which will not last for long or spend half of a day to gain water from distant rivers. This issue can be solved by human efforts, constructing the fundamental cause for water scarce.

3. Water Desalination technology as a solution

As a fundamental solution for the issue, this report suggests desalination of sea water and increase amount of basic amount of water. There were a number of solutions suggested including building dams and increasing number of wells. However, dams require huge budgets and cause natural destruction and disputes between neighbor communities and governments. Seawater desalination technology can be a solution for absolute lack of water. Method of distributing water and efficiency of use of water is another topic to be discussed. Yet, increase in basic supply of water is necessary before talking about micro issues.

Cost for introducing desalination plant has been decreasing rapidly due to increasing demand for water plants and improve in technology. For example, Algeria has introduced one of the largest desalination plants in the

world. In the future, this technology should be spread to larger number of African countries. Solving the water scarce issue will, then, improve sanitation and health problems. Plenty of water can be utilized in industry and agriculture, supporting economical development and food supply.