The concerns of water pollution in africa

Water pollution has become a serious problem in every country in the world. Urban growth, climate change, growing population, investments in agriculture, industrial development, and economic growth have increased the demand for water. Natural and manmade disasters have increased pollution risks in today's environment. Contamination of land, air and water is challenging the health of humans, plants, animals and other living organisms. Governments worldwide are burdened with mounting healthcare costs which is diverting investment capital away from economic development public sector projects.

The report will discuss issues on water pollution problems which countries in the African continent are facing. Sources of water pollution, water contamination impacts on health, environmental damages, and strategies necessary for reducing or eliminating water pollution would be discussed.

I. WATER SUPPLY IN AFRICA

a. Water Supply and Water Demand

i. Supply Source – Rainfall

Average annual rainfall in South Africa is recorded to be 450 mm per year. Rainfall varies between one location to another in South Africa – some regions receiving heavy rainfall and others recording low amount of rainfall. For example, people living along the coastal regions to the west of South Africa enjoy an annual average rainfall of 1000 mm. But regions in the north west receive very poor annual rainfall at less than 100 mm as reported by the United Nations Educational Scientific and Cultural Organization (UNESCO) in 2006. Rivers which are seasonal in nature have water only during the rainy seasons and they remain dry most times throughout the year. The

seasonal rivers during rainy days produce excess flow of water. The government of South Africa stores water in dams to meet the supply needs for drinking, industrial and agricultural needs throughout the year. South Africa is divided into following nine administrative provinces (12-86): (Markus Törnqvist and Björn Öfverström, " Drinking water supply in Southern Africa with a risk assessment perspective.")

Eastern Cape
Free State
Gautang
Kwa Zulu Natal
Limpopo
Mpumalanga
Northern Cape
SouthwestProvince
Western Cape

The average annual rainfall varies between one province and another. Information listed in Figure-3 illustrates annual rainfall in South Africa's provinces as follows (12-86): (Markus Törnqvist and Björn Öfverström, " Drinking water supply in Southern Africa with a risk assessment perspective.")

ii. Demand Source – Population

According to published data by the UNESCO in 2006, South Africa's total population is listed to be around 48 million. It is estimated that 59% of the population live in the urban community dwellings. Northern Cap which is the largest administrative province is reported to over 28 million people living in

the area which accounts for 37% of South Africa’s overall national population. Due to rapid economic growth and development, urbanization is fast growing with more and more people moving to metropolitan commercial centers in search of jobs or livelihood. Migration of people from rural areas to urban cities have triggered massive growth in cities – businesses, industries, infrastructures, civil defense, internal security, hospitals, and educational institutions etc. As a result of this there informal settlements have rapidly grown in and around commercial centers within the South Africa’s administrative provinces. All these growth and development have made water supply management very challenging. Millions of inhabitants living in various cities in each of the nine administrative provinces do not have adequate supply of water. Drainage and sanitation network are overstrained and inadequate to serve the community’s need. in these communities have not access to proper water and sanitation infrastructure. People living in the rural areas wholly depend on groundwater to fulfill or satisfy their needs for water. In South Africa, 19% of people in the overall population do not have access to safe water and over 33% people do not have the bare necessity for basic sanitation services. Over 50 million people in 1994 had suffered miserably without any water supply services. People had no choice except to meet their water demands from rivers, lakes, springs and ponds. Due to the concentrated and focused efforts by the government of South Africa in resource management efficiencies, overall number of people who did not have any water supply during 1994-2004 had dropped to by approximately 40 million (14-86). (Markus Törnqvist and Björn Öfverström, “ Drinking water supply in Southern Africa with a risk assessment perspective.”)

b. Water Pollution

i. Mining Water Pollution

Johannesburg which is the largest city in South Africa is on the brink of environmental disaster. There is no excavation and recovery process going on in several mines in the area and as a result of this most of these mines today remain closed. Unfortunately toxic water which is flowing out of these mines pollute and contaminate both surface and groundwater. Acid Mine Drainage (AMD) indicates entrapment of toxic water exists in the mines and when the toxic water flows out in a stream it contaminates entire water resources – surface water and ground water. Closed mines in Witwatersrand, South Africa stretches from Roodepoort to Boksburg (1-5). (Admin, " Sinking Solutions for Mining Water Pollution.")

Digging for minerals for years leave big gapping tunnels and hole in the mine. During the mining operation water which collects from ground seepage are pumped out to allow miners to perform their tasks. But when mining operation is suspended for commercial non-viability, water is collected inside and fills-up tunnels and holes deep inside. These water becomes highly contaminated by getting mixed with heavy metal particles from inside the mine. Overflowing toxic mine water becomes dangerous to the environment and contaminates rivers, ponds, lakes and springs along its flow path. Toxic water endangers humans, plants, animals, birds, marine life and the ecosystem with serious healthcare challenges (1-5). (Admin, " Sinking Solutions for Mining Water Pollution.")