	Title: Generating Vulnerability Map for West Bank Implementing the P-I Method
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Abstract:

Water is the common name applied to the liquid form (state) of the hydrogen and oxygen compound H2O. Pure water is an odorless, tasteless, clear liquid. The water or hydrologic cycle explains interactions between the atmosphere, hydrosphere, and lithosphere. It's a major driving force on our planet. Its movement also has a direct effect on the atmosphere. In addition, water makes up 50 to 90 percent of the weight of living things1. This is why water is considered as a key component in determining the quality of our lives. Today, people are concerned about the quality of the water they drink, although water covers more than 70% of the Earth, only 1% of the Earth's water is available as a source of drinking. Unfortunately our societies continue to contaminate this precious 1% of water.

However, water is known as a natural solvent. Before this drinkable water reaches the consumer's tap, it comes into contact with many different substances, including organic and inorganic matter, chemicals, and other contaminants. Many public water systems treat water with chlorine to destroy disease-producing contaminants. Although disinfection is an important step in the treatment of potable water, the taste and odor of chlorine is objectionable.

In recognition of the need for effective and efficient methods for protecting ground water resources from future contamination, scientists and resource managers have sought to develop techniques for predicting which areas are more likely than others to becomecontaminated as a result of activities at or near the land surface. Once identified, those areas could then be subjected to certain use restrictions or otherwise targeted for greater attention aimed at preventing contamination of the underlying ground water resources.

The concept that some areas are more likely than others to become contaminated has led to the use of the terminology "ground water vulnerability to contamination." Vulnerability is not an absolute property, but a relative indication of where contamination is likely to occur; no ground water, with possible exceptions such as deep sedimentary basin brines, is invulnerable.

The potential for contaminants to leach to ground water depends on many factors, including the composition of soils and geologic materials in the unsaturated zone, the depth to the water table, the recharge rate, and environmental factors influencing the potential for biodegradation. The composition of the unsaturated zone can greatly influence transformations and reactions. The depth to the water table can be an important factor because short flow paths decrease the opportunity for sorption and biodegradation, thus increasing the potential for many contaminants to reach the ground water.

Conversely, longer flow paths from land surface to the water table can lessen the potential for contamination for chemicals that sorb or degrade along the flow path. Recharge rates affect the extent and rate of transport of contaminants through the

saturated zone. Finally, environmental factors, such as temperature and water content, can significantly influence the degradation of contaminants by microbial transformations.