Berkeley terre haute indiana water balance

Science, Geography

GEOGRAPHY: WATER BALANCE (Berkeley, California and Terre Haute, Indiana) of the School Teacher's Date Submitted: Introduction Water is one of the most basic things in life; man cannot survive without water for long. In fact, water is life itself, so to say. However, man's activities have polluted many water supplies such that there are places where there is water but it is not potable. With that said, water is one of the natural resources that is taken for granted by most people, until they realize that water might be renewable but in a sense, it is not inexhaustible. The needs of a growing population also puts a pressure on water supplies and the global warming phenomenon has dried many previously wet areas which are the main sources of water. Weather patterns have been altered such that rainfall is also changed, causing floods in some dry areas and drying up some wet areas. This brief paper is a discussion on the hydrology of two different places (Ruben, 2003, p. 3) in the United States. Discussion The water balance of a particular place refers to the relationship between its water usage and its replenishment rate. If there is more usage than supply, then the water balance is negative. It simply means the mentioned place suffers from annual water deficit, and it must look for alternatives to make up for the negative balance in its water supplies. Studying the water balance of the place is a sub-specialty of geology because of the importance of having an adequate water supply. Many factors can affect the water balance of a place and this is the subject of this paper. The geographic location of a place determines to a large extent its available water. This is because factors like the amount of rainfall it gets annually, the degree of evaporation, the kind of soil it has affects water absorption rate (recharge) of the soil whether it

retains water or not, and proximity to water supplies determines the water balance, whether it is positive or not. The two places examined in this paper are Berkeley in northern California which is located in the Alameda County and has a population of around 113, 000 (2010 census); the other place is Terre Haute in the state of Indiana with a city population of about 61, 000 while the metropolitan area has a population of approximately 171, 000 (2010 census). Both places will be examined in a greater detail with regards to their water balance situations based on several factors. Berkeley is situated on the West Coast of the United States and has Mediterranean-like climate which presupposes cool and dry summers but wet winters. January is usually the wettest month of the year with 5. 13 inches (130-mm) rainfall on the average. Its hottest month is September with the highest recorded temperature at 71. 7°F (22. 1°C) and a minimum of 55. 9 °F (13. 3°C). Winters at Berkeley are usually mild, it does not often snow but if ever, it is only very little. This means it does not have sufficient snow packs from which water can be derived from the ice melt. The hot weather in summer and alternate strong winds from the Pacific Ocean cause water evaporation from surface water, so these two factors are significant in the water balance in Berkeley. Wildfire can happen in the area, during late spring and early fall when hot and dry wind blows inland. However, moisture from the ocean current comes during early morning and produces a night that is at times foggy. The soil formation at Berkeley is not conducive to retention of soil moisture, as most of the soil comes from crumbly rock of volcanic origin. The place itself is low flat plain, rising gently towards the Berkeley Hills (maximum elevation is only 535 meters). The area of Berkeley is about 17. 7

square miles (land is 59. 20% while water is 40. 8% including part of San Francisco Bay). The area is near bodies of water like waterways and small creeks flowing through it but its water supply is uncertain while demand is growing (Remick, 2012, p. 1). Compared to Berkeley in California, Terre Haute in Indiana has a more favorable water balance. It is located in the mid-latitude part of the United States, which means it has sufficiently cold winters that produce enough snow depth that can replenish the water supply during summer. Terre Haute is colder and therefore has less water evaporation as compared to Berkeley which is located in a hotter region. Furthermore, Terre Haute has peak rainfall during its summer as opposed to Berkeley where rains sometimes do not come as expected in dry spells. Its total land area is about 35. 2 square miles (almost double the area of Berkeley but only 2% of it is composed of bodies of water like rivers and waterways). The rainy months are from April to June, with an average of four inches of rain in eleven days of rains in those months. On the whole, Terre Haute has a better water balance compared to Berkeley in California. Its topography is favorable, as Terre Haute has shallow ground water near the Wabash Valley. Conclusion Berkeley is located in a relatively hot place, while Terre Haute has a milder climate. The water balance between these two places is more favorable for the latter. Terre Haute has a water surplus even during summers because of adequate rainfall and enough snow during winters for ice melt in spring. The water balance in Berkeley is usually a deficit, as it cannot adequately replenish water from its natural sources and factors like a hot weather that causes a lot of evaporation. The water situation in Berkeley is more precarious, as it depends to a large extent from

water supplies outside of the state of California, more specifically from Nevada or the American River Basin located in the Sierra Nevada. Topography of Terre Haute with its valleys and hills is contributory to its alluvial soil having high water absorption qualities for a recharge. References List Remick, C. (2012). Berkeley Water Center. University of California at Berkeley, College of Engineering. Retrieved from http://bwc. berkeley. edu/home/ Rubin, Y. (2003). Applied stochastic hydrogeology. New York, NY, USA: The Oxford University Press US.