Sustainable Water Resources for the Kingston Basin, Kingston, Jamaica

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The Kingston basin of Jamaica covers an area of approximately 258 km² is reeling under a severe drought condition due to the present El-Nino in the weather pattern. Rainfall is the primary source of water in the country, providing flow in the streams, direct recharge to the limestone and alluvial aquifers, and indirect recharge to the aquifers through the streams. The Kingston Metropolitan Area (KMA) contains about 26 percent of the country's population and is the largest consumer of water (61.8Mm3/yr). More significantly, the land area of the KMA zone has expanded westward and is currently experiencing an annual growth rate of 2.30 percent, which represents the fastest growing of the country's urban areas. Rainfall distribution pattern of the island shows that the Kingston Basin including the parish of Kingston and St Andrew has the lowest rainfall resources ie 208MCM as compared to the Blue Mountains North basin which has the maximum resources of 2346MCM. The major sources of water for the parish of Kingston and St Andrew are the Hope River which is diverted to the Hope Filter plant and the Mona Reservoir. Additional sources of water are derived from the eastern parish of St Thomas through the Yallahs pipeline and the streams flowing into the Hermitage dam. An increased growth of the KMA has involved in increased demand of water which is projected to reach a shortage of water by 2015. Climate change in the Caribbean has severely affected the water supply condition in Kingston in 2008-2009 and present. Jamaica has a bi-modal rainfall pattern with peak rain in the months of April-May and Oct-Nov. The year of 2009 was an El-Nino year for the Caribbean which saw very less rainfall in the months of April-May and Oct-Nov with the Met office declaring a drought indices of 82 for Kingston in Dec 2009. This led to a severe drop in the levels of the Mona (from 93% in Jan 2008 to 41% in Feb2010) and Hermitage dam, the two main suppliers of water to the entire population of 711,200 (Statin 2001) of Kinston. The Hope and the Mona Filter plant also showed a decline in their levels of input from 64% in early 2008 to 36% in 2010 (Mona) and almost nil for Hope FP due to almost negligible discharge in the Hope River (from 41% to 0%) in 2010. Also significant are the drop in the discharges of the Yallahs (28.5 Jan 2010 to 1.45 cfs in Dec 2010). All these have led to serious water shortages in the capital of Jamaica leading to water lock offs as a daily routine. The present conditions are not expected to improve until the El Nino season ends and the next hurricane season commences in June 2010.

References

[1] Statistical Institute of Jamaica (STATIN) Population Census 2001, Vol. 1, part 2, Parish of St. Andrew, pp viii-ix.