Title: Megawatersheds of the Caribbean: New Water from Old Rocks

Abstract

While modern science and technology has assured the world of future energy, the most life-sustaining economic mineral of them all – fresh groundwater resources – has been almost entirely overlooked by mainstream government and business entities and has remained the prevue of a few determined researchers. In spite of the low public profile of such efforts, a 30-year period of focused groundwater research, development and testing has raised the bar significantly as evidenced by groundwater discoveries in Africa, North America and recently the Caribbean Basin that increase estimates of local sustainable groundwater ten-fold or more.

These discoveries have redefined basic hydrological concepts and introduced new jargon into the lexicon of hydrology. The megawatershed paradigm will soon replace the traditional, synthetic watershed model of topographically constrained surface catchments with an accurate depiction of regional, tectonically controlled fractured bedrock basins, and discoveries of megawatersheds in freshwater-short regions from Somalia to Trinidad and Tobago have led to development of tens of millions of gallons per day of sustainable, potable water where no further groundwater existed according to prior studies using conventional methods.

From 1999-2002 on the islands of Trinidad and Tobago, specialized, globally proven exploration methods were applied to discover megawatersheds capable of delivering more than 200 million gallons per day of previously undetected, renewable fresh groundwater. At the same time, high-tech well siting and drilling techniques resulted in over 20 million gallons per day of new potable water production capacity within a three-year period. Surveys of all Caribbean islands by the same team that accomplished these unprecedented results indicate more than 2,000 million gallons per day of renewable, untapped fresh and high-quality brackish groundwater can be developed using these innovative methods.