Water Security

Wednesday, 27 July 2011

The Cayman Islands have had .55" inches of rain in forty eight hours this past week. This has apparently brought the temperature down a few degrees, which is a welcome relief. Our gardens are looking greener and hopefully some of the water will find its way into our underground aquifers from whence the Water Authority extracts our water for processing into our city water supply.

However, in years to come the climate is predicted to change, getting hotter and drier. this means the possibility of less rainfall for the Cayman Islands.[1]

Given the possibility of lessened rainfall in the future it is now time to start thinking of how we mitigate the effects of this climate change scenario. The Caribbean region is predicted to be as much as 30% drier with less cloud cover and between 2 to 5° Celsius warmer.

It is perhaps therefore time for our government to start the conversation on making it a legal requirement for all new homes and buildings in the Cayman Islands to have cisterns in which to collect rainwater. You may argue that this is a draconian measure which will add significantly to the cost of construction, and you would be correct. However, before you start protesting consider the following.

Rainfall.
Rainfall will be decreasing. This means that the water level in our underground aquifers may start to fall. The effect of this would mean processing more saline water which may increase the amount of energy expended, costing us more money. This could also lead to a ban on watering your lawn, washing your car or using your hose to clean your driveway.

Temperature.
With higher temperatures you will be making more use of you air-conditioning system increasing your monthly utility bill, again costing you more on your monthly Caribbean Utility Bill.

Energy Prices.
As oil becomes more difficult and more expensive to extract, not to mention that petroleum is a finite resource, oil prices will rise.[2] This is a given. Demand is rising, particularly in China and India and supply is remaining flat. This is an ominous sign.

Sea Level Rise.
In the longer term as sea level rises there will be more intrusion of salt water into the aquifers,[3] which, as pointed out above, means more expensive water.

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[1] A Future Caribbean Climate from PRECIS, Michael A. Taylor and Jayaka D. Campbell, Climate Studies Group. Mona, Department of Physics, University of the West Indies, Mona http://ijed.uwimona.edu.jm/economics/notices/Climate%20Change%20Conference/Day%201/Panel%201/4%20Dr%20Michael%20Taylor.ppt

[2] International Energy Agency, World Energy Outlook 2010, http://www.worldenergyoutlook.org/docs/weo2010/WEO2010_ES_English.pdf

[3] Sea Level Rise in the Cayman Islands, http://caymaninstitute.org.ky/publications.html

The answer to many of the problems facing us in years to come is to embrace the concept of sustainability. to obtain water security, cisterns are the answer. These should be mandated for all new construction, and for existing construction there are a number of options in above ground storage tanks available. Rain water is free and we should therefore take advantage of this resource. To offset the cost of building cisterns the government could discount other fees collected in the planning process.

Furthermore, it may be advantageous to consider the collection of rainwater by the Water Authority. It is a tremendous waste to allow the bounty of nature to flow into the sea. Other islands, Bermuda for one, have historically had public catchments. With the rising price of oil it would be a major step towards sustainability and energy security to implement this initiative.

To obtain self-sufficiency and sustainability we should also be looking at installing solar panels on all new construction for the generation of electricity as well as for water heating. Banks today are allowing borrowers to include renewable energy systems in their mortgages, and the equipment enters the Cayman Islands duty free.

Cayman Institute