

Phosphate asphyxiation of our tanks by terrorist ALGAE!

**Possible link
to kidney disease?**

CHANDRE DHARMAWARDANA

I was a speaker at two recent colloquia which addressed the issue of agro-chemicals and Chronic Kidney disease (CKD) in Sri Lanka. While the origin of CKD is claimed to be unresolved, I will state here an important new idea. In addition, an urgently important bomb-shell issue was exposed in an impassioned speech by Dr. Sarah Amarasiri, a past Director General of Agriculture. His message was simple and clear:

**Act NOW to avert
a national tragedy**

was astounded that his messages have so far fallen on deaf ears.

Eppawela deposits

Then came the address by Dr. Kulasooriya who reminded me that I had been one of his lecturers. He is an Emeritus Professor of Botany, Peradeniya, now at the Institute of Fundamental Studies. Dr. Kulasooriya explained how the friendly algae that resided in our tanks during the early

times as terrorist algae. However, the true terrorist is the excess phosphate.

The fertilizers commonly used contain potassium (K), nitrogen (N), and phosphorous (P) in the form of phosphate. Now that the farmers have saturated - nay, inundated our soils with excess phosphate, the freely sold fertilizers should contain only K and N, while the triple-element (KNP) fertilizer should be available only with permit from the agriculture department. This means the government will save loads of money in not having to import phosphate, or dig out the historic Eppawela deposits.

Dr. Sarah Amarasiri has also written a companion warning letter containing recommendations that we should all embrace, and enact with the utmost urgency. Even today we can read chapter 10 of Dr. Panabokke's "Soils of Ceylon and Fertilizer use", and construct a revised "Rational

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The farmer is using a rod to measure the height of the rice plants in the field.

The farmers of Sri Lanka have been using phosphate-containing fertilizers far in excess of what is needed – indeed – five to ten times what is needed!!! The excess run off is wasted money in foreign exchange. Far worse, it fuels catastrophic algal growth in water bodies like Tissa Weva or the village “pokuna”.

This will asphyxiate the reservoirs and render them lethal to most life forms. Dr. Amarasingh was my “Chemistry-honours” batch-mate from the sixties and an expert on agricultural chemistry. I

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20th century has now been superseded by poisonous varieties of algae. Such algae growth is a consequence of the excess phosphate run off from fertilizers. I could not help thinking of

approach to the use of fertilizers”, in the light of the dire warning issued by Dr. Saanth Amarasingh, published in these pages.

The important new idea about CKDU hinges on Dr.

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Amarasingh's warning about excess phosphate, as well as on Dr. Parabolke's observation that the structure and distribution of the aquifers in the Rajarata are important to understanding CKDU.

Excessive ionicity

In my view, it is the excessive ionicity of the water, where the Phosphate, Calcium, Chloride, Carbonates and other ions, that all add up to give a mildly caustic water that slowly erodes the glycolipid layers in kidney cells. This is easy to understand – we are familiar with how gargling with salt water removes the mucus layers in the mouth.

Once the kidney is weakened due to several years of exposure, it cannot effectively flush out the tiny amounts of toxins that enter into the body naturally or by the mis-mixing of agrochemicals. Hence, the origin of CKD in the Rajarata is, in my view, directly connected with the total ionicity of the water, rather than the existence of parts per billion of As, Cd, Fluoride etc. A primary contribution to the ionicity comes from the phosphate run-off from excess fertilizer use. Other ions, e.g., those causing hardness, will aggravate the problem.

The author is a part Vice-Chancellor and part Professor of Chemistry at Sri Jayawardenapura University, then known as Vidyodaya University. He is currently a Principal Research scientist at the National Research Council of Canada and a Professor of Physics at the University of Montreal, Canada.

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