

A Daily Mirror Editorial writer gives a false, scary picture of “The Silent killer in Sri Lanka”.

By Prof. Chandre Dharmawardana, Ottawa, Canada.

We live in a world where learned judges of a California court decided to award millions to a gardener who claimed to have contracted cancer on using a common herbicide, glyphosate, in tending a school garden. We live in a world where a California doctor of Sri Lankan origin addressed the Sri Lankan Medical Association and claimed that the presence of parts per trillion of glyphosate is enough to trigger all kinds of diseases and gene toxicity (see Sri Lanka Medical Association Newsletter, August 2018, and a response to it at <http://dh-web.org/place.names/posts/cdw-cmcOct2018.pdf>). Our galaxy has some 200 billion stars. One part in a trillion is like picking out one star out of all the stars in five such galaxies, and claims of effects at the level of one part in a trillion belongs to the mythology of infinitely tiny causes producing incredibly large palpable effects. In a previous age, we believed in such phantom powers ascribed to demons and malevolent spirits. The modern age also has invented its own frightening phantoms.

Given some commonplace acceptance of the belief that “agrochemicals” are “the silent killer” of the post war era, or that the Green revolution is a “monster gone crazy”, it is not surprising that editorial writers echo the same false views. Such popular memes are culturally acceptable to sensitive and educated people who have become suspicious of a scientific culture that they do not comprehend. Once this view is compounded with the suspicion that all scientists who speak for the use of science, technology, and agrochemicals are “paid agents” of huge multinationals manufacturing agrochemicals, an intolerant mindset is produced, where in scientists are not even allowed the right of reply. In fact, it is not expected that the Daily Mirror or any other newspaper would publish this article.

The Editorial Writer (EW) of the Daily Mirror of 1st December 2018 uses the title “*Poisonous chemicals: Silent killer in Sri Lanka*”, and reports the views of a politician, Hon. Champika Ranawaka, who has led a political program for a “Toxin-Free Nation”, jointly with the Monk Ven. Ratana and his associates. Their views are NOT shared by the vast majority of scientists, be they chemists, agriculturalists, food scientists, toxicologists, or medical scientists. And yet, the Daily Mirror editorial says that “*However, it is now widely accepted that imported agro-chemicals have been the silent killer in Sri Lanka*”.

I have worked on Sri Lankan topics since the 1960s and pioneered studies in food science and environmental science in my days in the 1970s as a Professor of Chemistry and University President (i.e., equivalent to a Vice-Chancellor) at the Sri Jayawardanapura (SJP) University (then Vidyodaya campus), where I had the help of colleagues like Professors Tuley de Silva, H. Wijenayake, W. S. Fernando, Stanley Gunesekera and others. So I have a good knowledge of the scientific community in Sri Lanka, and I believe that the claim of the Daily Mirror editorial is completely incorrect. It may mirror some public opinion and the opinion of various internet “gurus” like “Dr. Mercola”, but it does NOT mirror the opinion of the main-scientific community in Sri Lanka or of the main-stream global scientific community.

The Daily Mirror quotes Hon. Champika Ranawaka giving him an expert status, and proceeds to state that “Rachel Carson and her book *Silent Spring* paved the way for modern environment movements in the United States and to ban DDT and other related synthetic chemicals which have destroyed living beings including pests. Now this silent spring is echoing in Sri Lanka’s North Central Province. There prevails a deadly silence of a chronic kidney disease which has already killed hundreds of innocent poor farmers”.

First of all, what Rachel Carson said may have applied to the arid cotton belt and the farming methods of the 1960s, and they have little relation to those of Sri Lanka's North Central Province then or now. A paddy farmer may use herbicides for about three days in each season, and at parts per billion. In a landmark health study, some 90,000 US farmers who use herbicides like glyphosate (inclusive of all adjuvants) almost every day of the year for nearly 25 years were monitored by the US department of health and no increased health risks over and above that of the general public were detected. How many substances have proven their safety at that level of scrutiny?

It is sometimes claimed that while the pesticides used in USA are safe, what is imported to Sri Lanka is contaminated. This too is a false claim. It is easy to show that even if the contamination was 10 times stronger than that used in the USA, the effect, at the dilutions used, it would still be in the insignificant parts per billion level. In the WHO study of CKDu patients in the NCP, 97% of the patients did not have any significant levels of glyphosate in their biopsies! The 3% who had is within expected statistical error.

Coming back to DDT, in 2006 the World Health Organization approved the use of DDT for domestic use and control of mosquitoes and other disease-carrying insects. Many countries now use DDT against dengue and such diseases. While Rachel Carson's book is a valuable clarion call for being on guard, its factual value today is similar to that of an old computer manual from the 1960s.

The editorial writer (EW) should have consulted the scientists who have done extensive research since at least 2005, on kidney disease in the North Central Province before claiming that “it had been noted that selenium levels of people with the Chronic Kidney Disease of Unknown Origin (CKDu) were below the normal level and arsenic levels of their hair were higher when compared with that of healthy people in the areas”. So, is the daily Mirror writer claiming that arsenic is the cause of CKDu, together with the lack of selenium! Surely NOT?

A kidney patient is someone with a defective kidney, unable to flush out the toxins that normal people get rid off via bodily functions. A 100% of the patient biopsies even showed high levels of naphthalene! So it is NOT surprising that they have higher levels of various toxins, not just arsenic, in their hair and body organs. That proves the defectiveness of the kidney and not necessarily a causative connection.

From the information that I have, and from the published scientific literature, the University of Peradeniya scientists, the Kidney specialists of the Kandy Hospital, the WHO-NSF (National Science Foundation) study, or from the studies by Prof. Levine *et al.* of N. Carolina in collaboration with SJP University medical scientists, from studies by Japanese scientists, and by scientists of the National Water Board, there is no evidence in favour of arsenic toxicity in causing CKDu.

Furthermore, there has been no significant amounts of arsenic (i.e., even 10 parts per billion) in the soil, water or in the food chain, or in any agrochemical used in Sri Lanka, contrary to the claims of individuals who have tried to undermine the sale of Sri Lankan products like rice, tea and other commodities by attaching an “arsenic scare” to them. Another false scare has been about the presence of cadmium in Sri Lankan food, soil and the environment, together with the claim that cadmium has come to the country via “contaminated fertilizers”. This has been discussed in detail in my most recent research article in *Environmental Geochemistry and Health*, (July 2018 DOI: 10.1007/s10653-018-0140-x). The Sri Lankan public can rest assured that their food is NOT contaminated by these toxins.

I discussed in a recent article in the Daily News (<http://www.dailynews.lk/2018/11/07/features/167704/toxic-cocktail-myth-and-truth>) the claim that Sri Lankan vegetables like *Gotukola*, *Mukunuwenna* and other leafy products are contaminated by “dangerous levels of pesticides”. This kind of scare-mongering arises from sheer lack of knowledge about chronic toxicity, which is the process of slow poisoning caused by the ingestion of very small quantities of poisons every day for a long time. The WHO has given the admissible daily intake (ADI) which sets the safe daily limits. On that basis, the amounts of pesticide residues on gotukola etc., are such that a 60 kg adult must eat several kilos of gotukola everyday for a decade to acquire any form of chronic poisoning.

The currently available research on CKDu shows that those who contract the disease live on high ground away from agricultural canals and tanks, and consume the stagnant water of household dug wells or tube wells. The wells used by CKDu affected families contain a high amount of geological fluoride (a type of salt) and the water is also invariably hard (containing magnesium salts). When such water is fed to laboratory rats, they too contract kidney disease, as has been shown by independent groups of scientists. Dr Wasana and collaborators, led by Prof. Bandara have published their results in the prestigious journal Nature in 2017, while Dr. Thammitiyagoda and collaborators have reported their research in volume 62 of the Ceylon Medical Journal, 2017. So, the evidence points to CKDu being caused by the consumption of fluoride and magnesium containing water in stagnant household wells; it has nothing to do with agrochemicals. That geologically occurring fluoride could be a causative agent for CKDu was in fact conjectured by geologists and chemists like Professors Chandra Disssanayake, Rohan Chandrajith and Oliver Illeperuma as far back as 2005. But there was no hard evidence. While fluoride in very small amounts is very beneficial in preventing tooth decay, when fluoride occurs in larger amounts and in brackish water, it can turn harmful and damage kidneys. Furthermore, higher levels of fluoride can cause skeletal fluorosis, a condition noted in CKDu patients.

The livestock and domestic animals in the NCP do not contract kidney disease because they do not consume well water!

Sometimes people ask, why didn't the residents in the NCP get CKDu “in the old days”? In the old days people lived near agricultural canals and tanks; they used tanks or river water, or wells connected to the water table of the tanks and rivers. It is only with the accelerated Mahaweli program, when large numbers were settled, especially in places where tank or river water was not available, that the new residents began to dig wells on high ground.

If the Daily Mirror editor is correct, he/she should ask why the alleged silent killer, i.e. “agrochemicals” does not strike in other areas where there is an even higher use of agrochemicals, be it in Gampaha, Baddegama or in the Tea country.

The thoroughly frightened Daily Mirror editorial writer ends his/her write up with the plea “Thus, we hope the government will intensify its efforts to gradually reduce the use of imported chemical fertilizers, insecticides or herbicides. With the help of the media, intensive programs need to be conducted to educate farmers on the long-term value of using organic fertilizer such as cow dung”.

It is a very good thing if we can reduce the wasteful use of agrochemicals, or pharmaceuticals for that matter. Both agrochemicals, and pharmaceuticals are necessary for good harvests and good health. Does the editorial writer advocate our importing cow dung to meet the demand? Cow dung contains all the toxins that have been bio-accumulated by plants, picked up from the soil. The compost or cow dung imported from India or Bangladesh is likely to be quite contaminated, and stringent rules and controls

are needed with organic manure which is also an agrochemical.



(Egrets -“Kokku” - in a field near Maha Illuppallama, credits to Dr. C. Perera)

Plants and soil micro-organisms need nitrogen, phosphorus, potassium, other micro-nutrients, as well as humus-like materials in the soil. Tons of cow dung and compost are needed to do what one kilo of fertilizer can do. Organic farming uses more water (causing more erosion), need more land and produce a smaller yield. These have been discussed at length by Dr. Adrian Mueller, an expert on Organic food at the Swiss Institute of organic farming. That is why organic food is some five times more expensive than conventionally produced food. The total food production by organic methods is less than 2% of the world's needs even though “organic” farming started in 1920s in the West with Rudolph Steiner.

Hon. Champika Ranawaka seems to think that the country is awash with Toxins from agrochemicals. He should watch a farmer tilling the soil and observe the flocks of egrets (“kokku”) that flock behind the plough to eat earthworms and other soil organisms. If the soil is awash with agrochemicals, how come there is a thriving population of soil organisms? This is a question that Dr. Sarath Amarasiri, a past Director General of Agriculture, Sri Lanka, likes to pose from people who think that our environment is “poisoned by agrochemicals”.

Our environment is indeed poisoned by the exhaust from vehicles, trucks and tractors burning fossil fuels. It is poisoned by spores, molds, gases and leach emitted from mounds of rotting garbage. It is poisoned by the indiscriminate burning of plastics on road sides, the burning of rice husks and wood in open hearths inside houses. It is poisoned by the levels of particulate dust which are 500 to 1000 times in excess of WHO standards. Sri Lankans' bodies are contaminated not only with diesel fumes, but also from cigarette smoke and readily available strong alcohol. Although the CEOs of cigarette companies and distilleries should be put in prison for knowingly selling “class one” killers, they are treated as

respectable “captains of industry” and rub shoulders with elite ministers who are looking forward to installing coal-fired power plants that will further pollute the environment.