Editorial

TRADITIONS IN MANAGEMENT OF ENVIRONMENTAL POLLUTION

The variety of agents responsible for polluting the living environment are numerous as evident from the discussions in the current as well as the preceding journals of *Vidurava*. However, the element Sodium as a polluting agent of irrigation waters is exceptional, and has not been taken note of in the past. Hence it deserves a closer examination.

According to the author of this article, a phenomenon called "Sodium Adsorption Ratio" (SAR) of irrigation waters gives an indication of the permeability or impermeability of soils, and consequently also of the fertility of soils. The author retraces an episode where during monarchial times, water from an irrigation tank had been used to irrigate a 100 hectare paddy field for over 1000 years. But about 50 years ago, a canal with a source of poor quality water had been diverted to this tank to increase the availability of water. The farmers though initially pleased due to the higher availability of water, had to experience a tragic crop failure, causing the farmers to abandon their paddy fields. This was claimed to be the consequence of increasing the quantity rather than the quality of water for irrigation work.

The adverse effects of a particular quality of water on the plant-soil system is claimed to depend on the total salt concentration; relative proportion of sodium to other cations; boron concentration; and bicarbonate content. Water with low electrical conductivity contains mostly sodium and chloride ions. The relative proportions of sodium to other cations is claimed to be determined by the Sodium Adsorption Ratio (SAR). It is said that soon after an irrigation activity, precipitation may occur changing the supply of calcium, and establishing an equilibrium at a calcium concentration different to that in the applied water. The SAR equation does not account for these changes, and is therefore somewhat in error.

Taking as a critical example, the author shows that the dam built across Kalaweva by King Dhathusena, (in 6th Century AD), was to fulfill his wishes of providing adequate irrigation water. However, three to four hundred years later, the continuous use of Kalaweva waters had resulted in the Anuradhapura Kingdom getting shifted to Polonnaruwa, attributed to continuous crop failures due to loss of soil permeability.

Let us now sit back and review how our visionary forefathers engaged in meaningful lifestyles, developed the means of responsible consumption and production of natural resources, and disposed waste in compliance with nature's own turn-over cycle. In this process organic waste components were re-cycled by collecting and allowing these to decompose in small heaps or shallow pits to generate *in situ* organic manure. Some components were in fact incinerated, usually under anaerobic conditions in pits to produce ash. Such ash containing inorganic fertilizer components such as potassium, magnesium as well as micronutrients, were also subsequently applied to soil to supplement the organic fertilizers.

It is also known that traditional knowledge on plant species facilitated *Wannietto* to refrain from burning wood that produced excess of smoke, which they apparently realized would pollute the air. The popular timber tree *Milla* (*Vitex pinnata L.*), was known to emit excess of smoke, and hence was never burnt. It seems obvious that *Wannietto* were convinced that excess smoke could pollute the air, and consequently have adverse effects on their living environment, which constitutes a life supporting earth resource.

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