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## Editorial

M. Asoka T. De Silva

### Water Security Now and Then

The articles presented in this edition cover the fields of water resources management, water-borne diseases, purification and bottling of water, and water resource management in ancient times.

Water no doubt has become a serious business of everyone with per capita availability of water decreasing over time. It has been said that *Nations can be characterized by their water footprints and virtual water flows across their boundaries through the medium of international trade in commodities whose volumes change over times*. All what this concept conveys is that a country can export food and other products with low water requirements for production, and in turn import food and other products that require more water for production, to ensure a balance in water security. With the expected shortfall of this resource due to population increase, the rising standards of living, and climate change consequences, water may not be an inalienable right of its consumers.

Let us look back at our systems of conservation and utilization of water in ancient times. It is well recognized that the prime policy of our ancient Monarchs was self-sufficiency and security of food, for which availability and security of water were prime considerations. The manner in which this great philosophy was put into action could be seen not only with the magnificent reservoirs, but also with the numerous small tank cascade systems, known locally even as late as the mid 20th Century, as *Elangawa*. According to Dr M.U. A. Tennakoon, these were seen by villages as the stepwise suspended down-flow of water in a stream through canals from upper reaches, to a reservoir or river in lower reaches. According to Dr C.R. Panabokke, the District of Anuradhapura itself is said to have around 4000 small tanks of which about 3000 are still in working order. These

fall into 280 cascade systems. But one of the most intriguing innovations of water management has been the “feed channel” known as the *Yoda-ela* that took off from a diversion anicut at Elahara on Amban Ganga (a tributary of the Mahaweli Ganga), to supplement the rain-fed Minneriya, Kaudulla and Kantale tanks 25 miles away. A topographical survey of 1898 of this channel which passed through a valley carved out between the Konduruwewa and Sudukanda mountain ranges had revealed many remarkable technological features that demonstrate the indomitable perseverance and intellectual capabilities of the ancient engineers in conserving water, while at the same time featuring structures which had resisted the impacts of flash floods from hill streams. Significantly in the 12th Century AD, King Parakramabahu I strengthened the headworks and the massive bund of this channel creating a sheet of water which was not only navigable, but also constituted the so-called “Second Sea of Parakrama”, (referred to in *Chulamamsa* according to Mr D. L. O. Mendis), and now identified as the *Parakrama Sagara*. Incidentally, the so-called “Third Sea of Parakrama” (*Parakrama Samudraya*), was formed by the submergence of the Topawewa, Dumbutullawewa, Eramaduwwewa and several other smaller tanks by another embankment 9 miles in length, that took water from a second diversion anicut of Amban Ganga at a village called Angamedilla.

Finally, we see how King Dhatusena in the 5<sup>th</sup> Century AD formed a huge lake by throwing back waters of Kala Oya with a massive embankment joining the Kalawewa and Balaluwwewa, to take water to the “City Tanks” of Anuradhapura 54 miles away through the giant 40 foot wide canal the *Yoda Ela* or *Jaya-ganga*. These were the grandiose that guaranteed water security in a bygone era.