Development of a Unique Educational Nature Centre in Sri Lanka

The Centre for Water Quality Management and Global Program of Kidney Disease Prevention in Sri Lanka (CWQM-KDP)

The Problem:

Chronic Kidney Disease of unknown origin (CKDuo) has been estimated to result in the deaths of over 5,000 people a year (approximately, 13 deaths per day) and currently effecting more than 120,000 people. Approximately two million people are at high risk of contracting this deadly disease that is now spreading outside the north central province (NCP), including in Badulla, Moneragala, and Hambantota districts, and parts of the North Western Province.

There is no known cure for this disease other than kidney transplantation. Given that 90% of the affected populace live in rural areas, are poor and lack suitable donor kidneys, kidney transplantation is not a feasible option on a large scale. Dialysis is likely to prolong lives, but beyond the reach of many of the CKDuo affected patients who cannot afford to travel to hospital two to three times a week as required for this treatment.

Who is affected?

The CKDuo prone area is estimated to cover an area of 24,000 Km^2 involving close to 3 Million people. Productivity losses attributed to this condition are estimated to be greater than Rs 800 million per annum, and medical costs exceed Rs. 650 million. The total costs due to this disease is now estimated at Rs. 2.5 Billion annually (~20 million USD/year). However with a systematic program of prevention and education, as per the proposed center and the "CKDuo-eradication program" this disease can be controlled and potentially eradicated from Sri Lanka in around 12 years with an annual expenditure of around 260 million rupees (~2.0 million $US), a fraction of the current medical costs incurred in treating this disease of $US 18m due to CKDuo with the potential to save an estimated 5,000 lives per year. The cost/benefits ratio is extremely high.

While the specific causes of CKDuo are still not known, all data regarding this disease indicates that consumption of polluted and contaminated water is the major cause. Changes in agricultural practices including irrigation, excessive use of agrochemicals, heavy metals, fluoride, algae/cyanobacterial toxins, consumption of certain Ayurvedic drugs, tobacco and illicit liquor, and inadequate water intake may all contribute in varying degrees to this illness. Nevertheless, the state of knowledge of CKDuo is still evolving with no firm conclusions at this stage. However, access to clean water alone will, in all likelihood reduce the incidence of CKDuo by approximately by 50%. Therefore, our foundation has focused on the supply of clean water via new technology and engaged in education and prevention of environmental pollution with the goal of markedly reducing the occurrence of CKDuo.

Solutions:

Centrally purified mains water supply that currently service 45% of households in Sri Lanka, leaving 55% reliant on tanks, streams and wells for their drinking water. At current rates of service expansion, central water supplies are not likely to be available for non-serviced citizens for over three to four decades, by which time, an additional 280,000, mostly middle-

aged male farmers, and an additional 100,000 people in other areas are likely to have died due to CDK-uo/ CKD-mfo. We, as a small country, cannot afford such a disaster, and it would markedly and negatively affect rice production, a staple in Sri Lanka (politically sensitive), and the entire economy.

The numbers of deaths occurred due to CKDuo over the last decade have exceeded the death tolls due to the LTTE war and Tsunami; the numbers unfortunately continue to increase. Further, it will have a dramatic impact on overall agricultural production and labour supply, and also create additional pressures on a region already negatively impacted by war, drought, and climatic changes and would force the government to import rice and vegetables costing extra millions of foreign exchange, putting further pressure on foreign debt levels which are already high.

As we have proposed for the past three-years, the quickest and the most cost-effective solution is to use build medium capacity , Reverse Osmosis (RO) water purification units generating 20,000 Liters per day for each affected village, capable of servicing approximately 3,000 consumers. This represents one large village or a cluster of smaller villages. This approach together with Nature Center would also generate a significant number of new job opportunities.

These RO units, however, require regular maintenance and replacement of parts and purification membranes. Our estimates indicate a cost of US$ 8,500 to purchase, install and maintain each high-quality RO unit. Since this is a totally charitable project, we expect that these life-saving units can be imported free of import duty. The total cost of meeting the estimated requirement of 700 RO units for Rajarata will be approximately US $5 million with estimated on-going maintenance costs of US$ 2.5 million over the life span of all installed RO units, which will be borne by revenues from on-going activities.

The Centre:

While the installation and operation of these high-capacity, high-quality, water filtration units is central to the overall project, it has to be accompanied by public education and health care worker training, along with enhancing preventive health strategies, as the Foundation is already doing and intended to strengthen. Such a program would also include, water quality measurement, poverty alleviation, improvement of nutrition, job creation, environmental protection, and research into prevention of CKDuo.

The estimated basic budgetary implications are described by separate projects:

1. Education of health professionals (printed matter in all three languages, English, Sinhala and Tamil) US $35,000
2. Provision and training of water quality management devices: US $ 22,000
3. Public education campaign consisting of publicity materials, posters and printed material: US $ 50,000
4. Poverty alleviation, job creation, disease prevention and nutrition program: US $ 500,000
5. Develop and fund a network of relevant CKDuo research for local scientists to develop local expertise: US$ 500,000

6. Purchase, install and maintain reverse osmosis plants: US $5 million

The proposed Center will be the central coordination unit in conducting grass-root level research, data analysis, public health education, development of new cost-effective water purification methods, etc.. Many of these activities will be conducted in collaboration with respective government departments, private sector, and other philanthropic organizations.

In addition, this self-sustaining center will develop model agricultural plots for farmers using composts and natural ingredients, mobile and stationary rapid soil and water testing facilities, novel natural insect repellents and technology to clean contaminated areas. The activities of this Centre will also enhance the local economy and create a large number of skilled and semi-skilled jobs for this community, creating the potential for long term sustainable high value employment in an area much deprived of such opportunities and likely to create economic and political multiplier effects.

Critical Need

The most urgent requirement for the commencement of this project and the establishment of this Centre is a requirement of physical space. Hence, we request the allocation of a suitable land, between 50 and 100 acres (i.e., 20 to 40 Hectares), an area between Kurunagala and Anuradhapura.

Given that the Foundation will be providing the bulk of funding for this project, the government's contribution of land will be a substantial contribution in order for the project to commence and has the potential to be seen to be positive and high profile in the local electorate. The land required for this project should include convenient physical access as well as access to a constant supply of water throughout the year. Grid electricity is not essential, as the Centre will be reliant on solar power.

It is our earnest hope obtaining a donation of a suitable land for this major humanitarian undertaking that has the potential to benefit thousands of children and adults in the region and in keeping with the Buddha's exhortation for the highest of blessings: "*arogya paramalaba, santutthi paramang danang,*" and in keeping with the ancient traditions of Sri Lanka that blessings follow the kings who care for the sick, elderly and poor.

We depend on your generous contributions towards the success of this important project.

We look forward t o working with you.

Thank you for your kind attention.

Your truly,

Sunil Wimalawansa

Professor Sunil J. Wimalawansa, MD, PhD, MBA, DSc.