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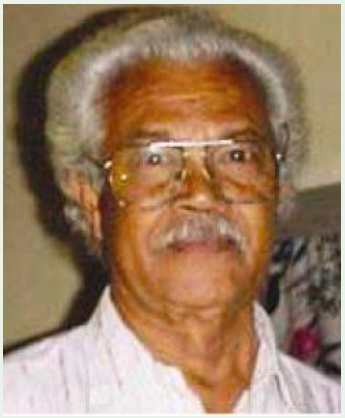
Honouring the Legacy of Mr. G.K. Upawansa: A Pioneer of Biogas Technology and Integrated Organic Agriculture in Sri Lanka

It is with profound respect and gratitude that the LBA honours the life and legacy of Mr. G.K. Upawansa, one of Sri Lanka's foremost pioneers of propagating biogas technology, integrated farming and organic agriculture. Throughout a distinguished career spanning more than six decades, he has demonstrated that renewable energy, sustainable agriculture and rural development were not separate disciplines, but interconnected components of a resilient farming system. His life's work continues to inspire engineers, agricultural professionals, researchers, extension officers and farmers across Sri Lanka.

For those associated with the LBA, Mr. Upawansa's contributions represent the practical foundation upon which Sri Lanka's biogas movement was built. While Professor Milton Amaratunga established the scientific and engineering basis of biogas technology in Sri Lanka through pioneering research at the University of Peradeniya, Mr. Upawansa transformed that knowledge into practical applications that benefited farming communities throughout the country. His career bridged the gap between on-farm action research and village life, demonstrating that biogas could become an integral component of sustainable agriculture and rural development.

Mr. Upawansa's remarkable career began in the fields. Raised in a farming environment, he acquired extensive practical experience in crop cultivation and animal husbandry from an early age. After obtaining the Diploma in Agriculture from the School of Agriculture, Peradeniya, he joined the Department of Agriculture, where his dedication and aptitude quickly became evident. In 1966, while serving as an agricultural officer, he enrolled at the University of Peradeniya as an external student to pursue a Bachelor of Science in Agriculture. His pursuit of knowledge culminated in 1972 when he received a scholarship to the University of Reading, United Kingdom, becoming the first Sri Lankan to obtain a postgraduate qualification in Agricultural Extension. This unique combination of practical farming experience, scientific education and extension expertise shaped his philosophy for the rest of his life: sustainable development could only succeed when scientific knowledge was translated into practical solutions for farming communities.

The introduction of biogas technology to Sri Lanka during the early 1970s was spearheaded by Professor Milton Amaratunga, whose pioneering engineering research established the scientific principles and structural designs for Sri Lankan biogas systems. Recognising the technology's immense potential for rural development, Mr. Upawansa worked closely with him to bring those innovations beyond the university and into agricultural practice. One of the most significant achievements of this collaboration was the integrated biogas system established at the Department of Agriculture's In-service Training Centre at Gannoruwa, Peradeniya which demonstrated how livestock, renewable energy, crop production and nutrient recycling could function as a single integrated farming system. Biogas generated from cattle manure supplied fuel for cooking for approximately one hundred trainees, while the digested slurry enriched crop production and supported fish ponds and other agricultural enterprises. Decades before concepts such as the circular economy, resource recovery and climate-smart agriculture entered international development discourse, Mr. Upawansa was demonstrating these principles through practical integrated farming.



Source: Lanka Organic Agriculture Movement

The Inventor of the *"Siri Lak Dahara"* Plug-Flow Biogas System

Rather than simply replicating foreign technologies, Mr. Upawanse recognised that successful dissemination required systems that reflected local materials, climatic conditions, farming practices and financial realities. Among Mr. Upawansa's most enduring technical achievements was the development of the "Siri Lak Dahara" Plug Flow Biogas System, an indigenous design specifically adapted to Sri Lankan conditions. Through this indigenous innovation, he demonstrated that Sri Lanka possessed the knowledge and capability to develop technologies suited to its own rural communities.

Establishing National Biogas Systems Standards

As biogas technology expanded across Sri Lanka, ensuring consistent quality and safe construction became increasingly important. Recognising his extensive practical knowledge, technical expertise, and leadership qualities, Practical Action, which promoted biogas development activities in Sri Lanka recommended the Sri Lanka Standards Institution to appoint Mr. Upawansa as the Chairman of the Technical Advisory Committee responsible for developing Sri Lanka Standard SLS 1292:2006 – Code of Practice for Design and Construction of Biogas Systems: Part 1 – Domestic Biogas Systems. This landmark standard represented a major milestone in Sri Lanka's renewable energy history. It consolidated decades of field experience into nationally accepted guidelines covering site selection,

design, construction, materials, operation and maintenance of domestic biogas systems. For the first time, engineers, technicians, development agencies and householders had access to a unified code of practice that significantly improved the safety, durability and performance of biogas installations throughout the country. The standard remains one of Mr. Upawansa's most important institutional legacies.

Integrated Farming: His Enduring Philosophy

If one principle defined Mr. Upawansa's life's work, it was integration. He believed that successful farming required the harmonious interaction of livestock, crops, renewable energy, soil fertility and natural ecosystems. Animal manure became feedstock for biogas production; biogas supplied clean household energy; digested slurry returned to the land as high-quality organic fertilizer;

Source: Gami Seva Sevena

crop residues became compost or digester feedstock; and every component of the farm contributed to another. This holistic approach reduced waste, enhanced productivity, improved soil health and strengthened farm resilience while reducing dependence on external inputs.

Today these ideas are recognised globally as circular bioeconomy, regenerative agriculture, nutrient recycling and climate-smart farming. Mr. Upawansa was advocating and demonstrating these principles decades before they became internationally accepted development strategies.

Pioneer of Organic and Nature Farming

Mr. Upawansa's vision extended far beyond renewable energy. He was among Sri Lanka's earliest champions of organic agriculture, indigenous farming knowledge and ecological land management. Through the Pasasa Organic Agriculture Movement (ECO, Nawalapitiya), he encouraged farmers to restore soil health through biological processes rather than dependence on synthetic fertilisers and agrochemicals. His work promoted composting, green manuring, crop diversity, indigenous farming practices, biodynamic agriculture and efficient nutrient recycling.

Particularly noteworthy was his emphasis on integrating biogas systems into organic farming.

Teacher, Mentor and Author

Knowledge sharing was central to Mr. Upawansa's career. As the Principal of the School of Agriculture, Angunakolapelessa, he inspired generations of agricultural instructors and extension officers who subsequently served farming communities throughout Sri Lanka. He also authored several influential publications, including Biogas Technology – Design and Construction, published by Practical Action, which became one of Sri Lanka's most important practical references on domestic biogas systems, and New Kekulama on nature farming and organic agriculture, which presented his philosophy of sustainable farming and ecological agriculture. Whether through books, lectures, demonstrations or farmer training programmes, Mr. Upawansa consistently translated technical knowledge into practical guidance that ordinary farmers could understand and apply.

Leadership within the Lanka Biogas Association

Mr. Upawansa remained a guiding force in Sri Lanka's biogas community throughout his life. As a founding member and President Emeritus of the LBA, he provided technical leadership, mentorship and strategic direction to the Association. Younger engineers, academics and practitioners benefited immensely from his willingness to share practical experience accumulated over decades of fieldwork. His calm demeanour, humility and unwavering commitment to sustainable development earned him the admiration and respect of colleagues across disciplines.

A Legacy that Lives On

Mr. Upawanse demonstrated that renewable energy cannot be separated from agriculture; that waste is a resource when managed wisely; that soil health underpins food security; and that sustainable farming depends upon working with nature rather than against it. Long before today's emphasis on climate resilience, circular economy and regenerative agriculture, Mr. Upawansa had already shown how these principles could be applied in practice.

His influence continues through the thousands of farmers who adopted integrated farming practices, the agricultural officers he trained, the engineers who follow national standards he helped develop, the students inspired by his teachings and the practitioners who continue to build upon his vision.

As Sri Lanka advances towards a greener and more sustainable future, the life and work of Mr. G.K. Upawansa stand as a powerful reminder that lasting progress is achieved not only through scientific innovation only, but also through dedicated service, practical wisdom and an unwavering belief in the ability of rural communities to prosper in harmony with nature.

The LBA pays its deepest tribute to Mr. G.K. Upawansa for his immeasurable contributions to renewable energy, sustainable agriculture and the nation's biogas movement. His vision, leadership and lifelong service will continue to inspire generations to come.

"The true measure of a pioneer is not merely the technologies introduced, but the lives transformed through their knowledge, dedication and vision."

Lanka Biogas Association
www. Lankabiogas.lk