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Obituary Note

Prof. (Dr) A M Michael: Great Agricultural Engineer, Pioneering Informatician

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Abstract

Dr A M Michael (1930-2021) was a distinguished agricultural scientist, a renowned institution builder and a reputed public servant. Only a few individuals in this century can claim to have had a greater impact on Indian agricultural research and development, irrigation engineering and Informatics than Dr Michael. Apart from developing irrigation systems which could minimise water loss, it was he who thought ahead of time and introduced the idea of Agricultural Informatics (Ag I) preparing the agricultural sector of India for the networked society. It was Dr Michael who pioneered the digitization of PhD dissertations bringing them into Open Access for wider visibility, application and prevention of research duplication.It greatly influenced the establishment of innovative knowledge management systems like KrishiPrabha, mguthese.org and Shodhganga. Vision, intellect, passion, will power and quest for excellence, infallible power of judgment and diligence against all odds; rarely do we get to see these qualities together in a single individual.

Keywords: Agriculture, Informatics, Agricultural Informatics, Engineering, Irrigation, Water, Research, Open Access, A M Michael

Dr A M Michael who made unique contributions to agricultural research and development, irrigation engineering and Informatics died at Cochin on 12, November 2021. He was 91 years old. Only a few individuals in this century can claim to have had a greater impact on Indian agricultural research and development, irrigation engineering and Informatics than Dr Michael.

Prof. Arayathinal Michael Michael was an internationally acclaimed figure in the field of Agriculture and Irrigation. He was a distinguished agricultural engineer, much respected academic administrator, and a valued public servant. This short assessment traces his progression from lab and field to positions of senior scientist, professional, faculty, Vice Chancellor and as head of the reputed national university and research organization - Indian Agricultural Research Institute (IARI). But unlike the case of such leaders in other countries, Prof. Michaels' career required him to face unusual obstacles, which no one else would have surmounted.

Dr Michael is known for developing irrigation systems, which minimise water loss. He established his position as an institution builder of high repute in the agricultural sector of India. Beyond all this, he is one who first initiated projects that can harness the power of Informatics for agricultural education, research, extension and development and laid the foundation for applying Agricultural Informatics to prepare the sector in India for the networked society. The developments that resulted in the establishment of Knowledge Management Systems like Shodganga, KrishiPrabha etc in India have roots in the innovative projects he initiated in the 1990s when such systems were not even dreamed of. Even after three decades, the higher education

and research system for agriculture could not envision or implement better ICT compliant systems than what he achieved.

Born in Poonjar in Kerala, India, Dr Michael studied at the Allahabad Agricultural Institute under Prof. Mason Vaugh who developed the first agricultural engineering department outside the United States. He was Dr Michaels' great inspiration and role model. He obtained MTech in Agricultural Engineering and PhD in Soil and Water Conservation Engineering from Indian Institute of Technology, Kharagpur.

His first lecturing position was at Rajasthan Agricultural University, where he learned the importance of inculcating practical skills. There he became a Reader and a Professor afterwards. In 1966, Michael became a Professor at Punjab Agricultural University where he continued up to 1968.

In 1968, he joined IARI, New Delhi as a Senior Research Engineer and from that position he moved to the post of Professor and later to Director of Water Technology Centre. He also served at the University of Nairobi, UN University, Lund University and Asian Institute of Technology, Bangkok before he joined IARI as its Director (1984-90). Dr Michael laid the foundations for IARI which became a leading international, agricultural research organization. Afterwards he was invited to take up the position of Vice Chancellor of Kerala Agricultural University (KAU), which was then in a deplorable condition due to political interference, trade unionism and corruption. Given the importance he attributed to quality and integrity of education and research with a stress on practical skills, value of knowledge and industrial partnerships, Dr Michael was the apt person to change such a system. Standing like a rock, cool and unshaken in highly adverse circumstances, he took the university to greater heights of excellence.

He was not afraid of controversies and his advocacy for strict implementation of UGC/ICAR regulations on minimum qualifications for appointment of faculty and other measures for the maintenance of standards in higher education, his resistance to dilute the regulation as a mere pay package by trade unions and his objection to political interference in academic freedom got him into hot water of Kerala's highly politicised academic environment of Kerala. He was willing to face the challenges and control the union leaders whose hobby was 'rocking the boat', if it was not moving in the direction of the political parties to which they were affiliated. Being a tough, uncorrupt, unbiased academic administrator who can not be influenced to go against his principles, he was removed from the VCs' post; but the court reinstated him. But after coming back to position he resigned from the post the same day stating that he fought only for upholding academic principles and justice and not for the position. With all these hindrances during his tenure as Vice-Chancellor, there was all-round development of academic and infrastructure facilities in KAU which one can still identify in the university (Jayapradeep and Gireesh, 2021).

His ten years as Director of IARI and as VC of KAU were merely the tip of the iceberg in his career that spanned more than five decades and resulted in numerous innovations in agricultural irrigation and Informatics scenarios.

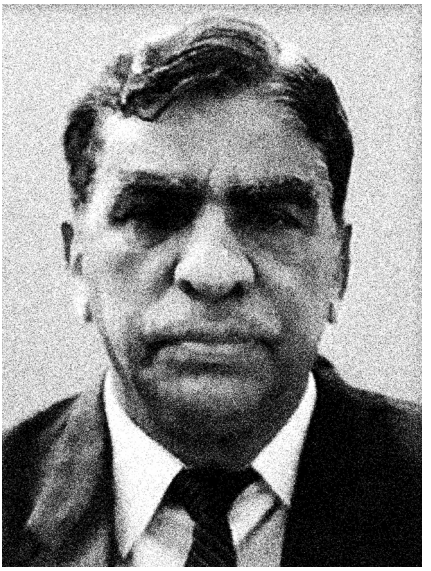
Leaving the university extended Dr Michaels' sphere of activity and he provided consultancy in soil and water conservation to various national and international organizations. He was consultant to World Health Organization, World Bank, Commonwealth Secretariat, Food and Agriculture Organization (FAO), United States Development Agency (UNDP), Winrock International, Asian Institute of Technology (AIT), Water and Power Consultancy Services Limited (WAPCOS), International Crops Research Institute for Semi Arid Tropics (ICRISAT), and Indian Council for Agricultural Research (ICAR). He was a Fellow of Institution of Engineers (India), Indian National Academy of Engineering, Indian Society of Agricultural Engineers (ISAE) and Indian Association of Soil and Water Conservation (IASWC). His books went through numerous editions and became part of the syllabus of universities worldwide. His book titled 'Irri-

gation: Theory and Practice' is considered an all-encompassing encyclopedia and authority on the subject of irrigation, its management, methodology and the technological advances in the field.

Dr Michaels' outstanding professional contributions were honored through many awards and honorary degrees, from government and institutions like 'Mason Vaugh Agricultural Engineering Pioneer Award' of Indian Society of Agricultural Engineers, Rafi Ahmed Kidwai Memorial Award and the Dr Rajendra Prasad Award of ICAR, Honorary Degree of DSc (h.c.) of N D University of Agriculture and Technology, Gold Medals of Indian Society of Agricultural Engineers and Soil Conservation Society of India and Eminent Engineer Award (2014) of Institution of Engineers (India).

Dr Michael's academic pursuits, research and inventions were mainly on conservation and optimum utilization of water. He considered that increase of agricultural production in India depended on more efficient use of irrigation water and so R & D on the hydraulics of water irrigation and improvement in efficiency of water application is a priority in the sector. He evolved a criterion for design of the border irrigation system based on measurable characteristics of the site. His findings and suggestions influenced the irrigation and water management systems worldwide.

As access, storage and dissemination of knowledge and information were identified as crucial for agricultural development, he initiated programmes for development of Agricultural Informatics (AgI) - a nascent term and thought at that time - during his tenure at IARI and KAU. At KAU, a future proof physical infrastructure he garnered to house an information system, conference facility etc of international standards stands exceptional even after two decades. It consists of a knowledge hub with state of the art electronic data complex, digital library for dissemination of topical awareness and global information to the agricultural sector. It has the capacity to digitally archive the events, symposia, and



conferences hosted in the auditorium and instantly telecast them through the Internet. It consists of ICT training facilities for scientists, teachers, information professionals, research scholars and farmers. He involved internationally acclaimed architects, designers, technologists and professionals, and used the best ICT stacks and solutions like Alpaha Server 1000, JVC Juke boxes, CD Servers and equipment from Digital Electronics Corporation UK for making his dream come true. This system was then expected to become a showcase of the electronic age in agriculture and allied disciplines.

Dr Michael was also one of the earliest academic administrators to use ICT for quality improvement of PhD programmes, which consumed a substantial part of the funds meant for higher education and research. The result of research using public funds is not transparent or made available for use in society. He initiated a project to digitize dissertations of agricultural universities and provide online open access to them for wider visibility, application and to prevent duplication of research. This resulted in the first OA Repository of Doctoral Theses (1995) in India at KAU when organizations like UNESCO and MIT have not developed solutions meant for the specific purpose. This was later continued

by ICAR as KrishiPrabha (e-Theses) project.

A blessing I got in my professional life was the chance to work directly under Dr A M Michael for five years, assisting him in information infrastructure development. Even though we never met before or after that period, I considered him as my teacher, mentor and one who was the greatest influence in my career and professional life and owe him much for all that I could contribute. One of the things that still surprises me about him is his love for the challenge of solving problems peacefully with a smile without permitting any negative factors affect him. His success was not only due to his creativity and expertise but because his love for work which was his life. He allowed no personal matters to interfere in his work.

I still cherish a few instances with him. Immediately after joining under him in one important top-level meeting he convened, I had to represent matters related to information infrastructure development. But on that day my mother living at a distant city became seriously sick and I had to reach her. I asked him permission to put the person next to me at the meeting that day. He disposed of me with a simple reply 'If you consider this work as secondary you can leave'. I felt it was inhuman. But immediately after the meeting was over he summoned me and directed his private secretary to ensure that all facilities of the university were mobilized to ensure that I reach home fast and fulfill my responsibilities there. In another instance, he wanted me to directly supervise a multi crore project for which he trained me. But in the initial phase itself, there was an attempt to physically assault me at the campus due to my actions on the project coming into conflict with some poweful vested interest groups. I found that implementing it, as he envisioned, would threaten my life in a corrupt environment that prevailed there then. Reporting the hindrances to him would result in an immediate action against those concerned which would be more dangerous to me. So I asked him hesitatingly to consider transferring a major part of the work to a central government division to which he agreed without much objection as he would have already understood the situation in which he placed me. His personal assistants used to complain that when he returned after long official tours, a load of pending files were transferred to his residence after the working hours and he worked almost twenty four hours to clear them. Those were days of hell to those who had to assist him at such times.

Dr Michael was committed to a vision of a better-managed education and research system responsive to student needs and able to provide society with value for money. He regarded good teaching as an area with insufficient focus and attention that had previously been given. His emphasis on research, balanced with high-quality teaching, international links and business partnerships resonated completely with the ethos of useful learning on which the universities and research organizations were founded. He liked to get things done fast and perfectly and never tolerated 'can't be done brigades'.

The mark Dr AM Michael made in the agricultural sector was made possible only because of the combination of abilities and character traits he possessed. He was 'a remarkable man, a man of vision, intellect and passion for the subject whose considerable talents were used for the benefit of the agricultural education, research extension and development on the regional, national and international stage'. We rarely come upon a person like him with a strong will, power and quest for excellence, and the rare power of judgment and diligence against all odds.

Dr Michael is survived by his wife Kochuthresia of Vazhithala Kochuparambil, children Vijayan Michael (Retired Deputy Secretary, Union Defence Ministry) Udayan Michael (United Staes) and Dr Vimala Vinod (Dermetologist, Dubai).

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