



**SHRI A.M.M. MURUGAPPA CHETTIAR RESEARCH CENTRE  
(DR. C. V. SESHADRI, DIRECTOR)**

**Recipient of the Award for Application of Science and Technology for Rural Development - 1981**

The A.M.M Murugappa Chettiar Research Centre (MCRC), Madras was established in 1973 in memory of the late Shri A.M. M Murugappa Chettiar, a leading industrialist, with the major object of carrying on fundamental and applied research in natural resources like water and energy. The Photosynthesis and Energy Division (P. & E. Division) of the Centre (recipient of the Jamnalal Bajaj Award for 1981) was set up in 1977. Its basic areas of research are the application of biotechnology as well as wind and solar energy for rural development. Its focus is one the application of science and technology to help the rural population to augment their earning capacity and improve their quality of life with better nutrition, health care, and environmental sanitation. The specific objectives sought are to develop appropriate technologies and to make them available to the people to enable them to achieve self-reliance and self-sufficiency in the production of food, fodder and energy. Its clientele are the landless and marginal farmers, small artisans, and other sections of the rural population in need of simple and low-cost technologies to tackle their day-to-day problems.

The P. & E. Division of the MCRC is headed by its Director, Dr C.V. Seshadri, aged 51 years, a chemical engineer with an outstanding career in industrial research and teaching in India and abroad, who has taken up the mission of bringing the benefits of science to the doors of the rural communities. He is assisted by a band of devoted scientists and social workers and encouraged and supported by the Board of Governors of the MCRC consisting of eminent industrialists, scientists and administrators, with Shri A.M. M Arunachalam as its Chairman.

The MCRC has been carrying on experiments in the field as well as in the laboratory to convert the local natural resources as well as animal and industrial wastes into inexpensive and convenient sources of energy for a multiplicity of purposes.

The scientists of the MCRC led by Dr. Seshadri have developed two types of simple windmills for raising water for drinking and irrigation: the ANILA for use in coastal areas and the POGHII for interior locations, suited to the wind conditions in the areas. The ANILA has won the Indian President's Award for inventions as well as the United Nations gold medal awarded by the World Intellectual Property Organisation. Low-cost solar driers for crops and fish, solar water heaters and stills and Passive Solar Architecture using hollow bricks and tiles to control the temperature in single and multi-storied buildings are among the other technologies developed by the MCRC.

In the field of biogas production for domestic use utilizing animal waste, the MCRC has designed a simple, low-cost plant JWALA consisting of a plastic balloon as gas-holder supported by a geodesic structure. Its cost of Rs 1,500/- is less than the subsidy given by the Khadi & Village Industries Commissions for their conventional plants. Biogas technology using agricultural wastes like hyacinth and incorporation of photosynthetic bacteria in biogas for enhanced gas production and better quality effluent are other innovations introduced in this field. The scientists are also working on a scheme for large-scale afforestation by planting fast-growing trees on uncultivated land to be utilized as fuel with suitable modifications in the furnace in power generation and other industrial units in place of the fast

depleting fossil fuels like oil or coal getting costlier day by day. These forests would provide a continuous and renewable source of fuel.

In the area of food and fodder production, intensive biodynamic vegetable and fruit gardening, small-lot forestry for fuel and feed, mass culture of high protein foods like *Spirulina fusiformis* algae as a feed and fodder supplement, and inland pond fish culture are some of the innovations introduced by them. They have also developed pesticides and fertilizers from local vegetation and waste materials like neem leaves.

In developing appropriate technologies and transferring them to the rural population, the scientists of the MCRC have kept in mind certain fundamental principles. The technologies should conform to the lifestyle of the people and be easy to understand and maintain. They must be within the means of the users. They should enable human labour to be more beneficially utilized with the aid of simple tools and implements for generating more employment and incomes instead of heavy investments in capital equipment and running costs.

Keeping those principles in view, the technologies and devices developed by MCRC are such that all the equipment and implements can be fabricated and maintained by the village level artisans using materials and processes available in the villages or nearby small towns. The farmers and others who have initially adopted the new technologies and benefited from them can also easily impart their knowledge and experience to their fellow-farmers and other villagers who are motivated to adopt them later.

The MCRC has been working in close co-operation with international agencies like the International Federation of Institutes of Advanced Study, Stockholm, and the United Nations University, Tokyo, to study the impact of their work on rural development in specific areas and to undertake extension work on a larger scale.

Dr. Seshadri believes in a self-replicating model of rural regeneration wherein the external inputs will become gradually self-eliminating while at the same time the technological and economic advancement of the rural community will be self-propelling. In this respect, he emphasizes the need for emulating the DNA model of self-replication.

Some of the scientists engaged in the field work including Dr. Seshadri live in the villages among the villagers to inspire their confidence and work in partnership with them in developing appropriate technologies. The social workers involved in this work have been acting as a link between the scientists and the villagers. About 10,000 people in nine rural areas of Tamil Nadu have been directly or indirectly benefited by the projects and technologies initiated by the MCRC during the four years of its existence.

Several scientific papers have been published by the MCRC in English, Hindi and Tamil summarizing the results of its projects and experiments for the benefit of those engaged in similar activities in India and abroad. The States of Andhra Pradesh, West Bengal, Orissa, Gujarat, Karnataka, Kerala and Mizoram have evinced interest in the work of the MCRC and approached them for help in introducing the new technologies in their areas. The work of the MCRC is a continuous and continuing process which is gathering momentum day by day.

