

ALUMNI PROFILE

The Commission's aim is for Scholars' studies to benefit their home country or institution. Sometimes, due to a lack of available research facilities, this purpose is best served by our alumni continuing to work overseas. The subject of our profile this issue now works in the UK, but his research on solar energy has been of benefit to his native Sri Lanka as well as many other countries around the world.

Professor I M Dharmadasa (Dharme) was a Commonwealth Scholar at the University of Durham in 1977, studying for a PhD in Solid State Electronics.

Dharme started his academic career as a probationary assistant lecturer in physics at the University of Peradeniya, Sri Lanka, but he needed to complete a postgraduate degree to secure a full lecturer position. With no research facilities in physics available in Sri Lanka at that time, Dharme had to look for postgraduate opportunities outside the country, and applied for a Commonwealth Scholarship. He feels that he was 'fortunate to win a Scholarship through a very competitive selection process'.

NEW SKILLS AND INTERESTS

Dharme believes that his award developed his networking ability as well as his academic interests. 'The scholarship gave me an excellent opportunity to develop academic, social and networking skills. Academic work carried out with supervision by the late Sir Professor Gareth Roberts and Professor Mike Petty gave me a kick start to enter into the electronic materials and devices field and solar energy conversion.'

Solar energy research has indeed gone on to form the major focus of Dharme's career. Solar energy has the potential to give countries greater independence in energy supplies, as well as providing a clean energy source that does not harm the environment. Access to reliable electricity supplies is also of pivotal importance in the developing world. As a result of worldwide research on photovoltaic solar energy conversion, large area solar panels made with silicon are more readily available but expensive. Researchers are working to produce alternative low-cost and high-efficiency solar panels based on other suitable materials. Greater production and increased demand due to the development of more diverse applications will also help reduce costs.

Dharme estimates that the greatest impact will be



Professor I M Dharmadasa (second from right) with one of his solar panels and members of his research team at SHU

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Professor I M Dharmadasa

from the use of solar energy in smaller-scale water pumping and drip irrigation systems. 'With millions of people struggling to find clean water for drinking, freely available sunlight can be utilised to increase water supplies and drastically improve their standard of living.' Clean water is vital for food production and small business requirements and so also facilitates economic development in these communities.

There are many other applications made possible by this new technology. Solar-powered home lighting systems, hot water systems, computers in remote schools, refrigeration, air conditioning of buildings, remote health centres, lanterns, ice cream carts, telephone booths, and sewing machines are to name just a few. While most of these small and standalone systems have immediate applications in developing countries, grid-connected solar roofs and large-scale power stations are also emerging in developed countries.

CAREER WITH AN INTERNATIONAL FOCUS

After completing his award, Dharme returned to his university in Sri Lanka but, after four years as a lecturer, his research interests in solar energy

brought him back to the UK. After posts at University College Cardiff (now Cardiff University) and BP Research, Sunbury, he now works at Sheffield Hallam University (SHU) as Professor of Electronic Materials and Devices. Dharme currently leads the solar energy group within the Materials and Engineering Research Institute at SHU. He has published widely and secured six new patents, while working with industrial partners on solar cell development and pioneering research in this field.

Although Dharme is primarily based in the UK, the nature of his work means that his career definitely has an international dimension. 'I have kept very close links with my native country and, after coordinating higher education links with several Sri Lankan universities for over ten years, helped form the South Asia Renewable Energy Programme (SAREP).'

SAREP is a renewable energy programme jointly initiated by the Commonwealth Science Council, the Applied Physics Division, School of Science and Mathematics, Sheffield Hallam University, the British Council and in-country counterparts to promote and accelerate the use of renewable energy technologies.

SAREP trains young scientists in renewable technology through postgraduate programmes and raises awareness of renewable energy applications amongst entrepreneurs and policymakers. It also enables entrepreneurs in Asia to develop trade and investment relations with partners in other parts of the world.

The work of SAREP has spread to many other countries outside the South Asia region. To continue this, the Solar Habitat Programme has been designed to develop the use of clean energy technologies in rural communities. Dharme takes great pride in this work, as it contributes to the Millennium Development Goals. 'My wish is to work with a large number of previous Commonwealth Scholars and other learned communities to help needy people around the globe.'