

Viewpoint

Science, technology and the Third World

Abdus Salam believed that the gap between rich and poor nations is one of science and technology. His former student Riazuddin describes efforts to bridge that gap.



Riazuddin

Abdus Salam, who died on 21 November 2001, would have been 77 on 29 January 2003. In remembering him on such occasions, one misses his sharp intellect and his passion for promoting science and technology in Third World countries. Few have discovered a universal law of nature, and still fewer have founded an Institute for the underprivileged. Salam accomplished both. In addition to seeking "unity in seemingly disparate forces of nature", he sought unity in mankind, and his crowning achievement was the creation in 1964 of the International

Centre for Theoretical Physics at Trieste - now named after him - which has touched the lives of physicists and other scientists the world over.

Yet Salam failed in one of his lifelong goals, perhaps the one closest to his heart. Near the end of his life, he lamented: "Countries like Turkey, Egypt and my own country, Pakistan, have no science communities geared to development because we do not want such communities. We suffer from a lack of ambition towards acquiring science, a feeling of inferiority towards it, bordering sometimes even on hostility."

Passive tolerance of poverty in the Third World was of deep concern to Salam. The greatest failure of science and technology is their failure to act as a social equalizer, and the gap between rich and poor has increased, despite the fact that the wealth created by science and technology is sufficient to alleviate poverty. "Predictions that the 'poor might not always be with us' have not come true. In 1990, there were optimistic forecasts that the percentage of absolute poor in the world (those with income below US\$1 a day) would drop to 18% by 2000. By 1998, the figure was at 24% and the trend-line had turned upward" (Mooney 1999).

This echoes what Salam said in 1988: "This globe of ours is inhabited by two distinct types of humans. According to the UNDP count of 1983, one-quarter of mankind - some 1.1 billion people - are developed. They inhabit two-fifths of the land area of the Earth and control 80% of the world's natural resources, while 3.6 billion developing humans - 'les miserables', the 'mustazeffin' - live on the remaining three-fifths of the globe. What distinguishes one type of human from the other is the ambition, the power, the elan which basically stems from their differing mastery and utilization of present-day science and technology. It is a political decision on the part of those (principally from the South) who decide on the destiny of developing humanity if they will take steps to let the less miserable create, master and utilize modern science and technology for their betterment."

Again he wrote: "Today the Third World is only slowly waking up to the realization that in the final analysis, creation, mastery and utilization of modern science and technology is basically what distinguishes the South from the North. On science and technology depend the standards of living of a nation. The widening gap in economics and influence between the nations of the South and the North is essentially the science and technology gap. Nothing else - neither differing cultural values, nor differing perceptions or religious thoughts, nor differing systems of economics or of governance - can explain why the North (to the exclusion of the South) can master this globe of ours and beyond."

Indeed, scientific knowledge and innovation are becoming leading

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factors of production and economic development around the world. There can be no high technology without first-rate science. Science develops new tools in laboratories for its progress, and trains students and technicians to build them. These tools find users outside, and some young people become entrepreneurs and launch their own companies, which then grow into large enterprises. However, such companies grow around big centres of scientific research, for example Silicon Valley around Stanford. But the Third World countries do not have big centres of research. So do they have a chance, or have they lost out for ever? I believe the answer lies in linkages with big science centres in developed countries. A fine example is CERN, where high technology and fundamental science reinforce each other.

Let me end by quoting from a paper by Salam, presented on 11 May 1983 in Bahrain: "We forget that an accelerator like the one at CERN develops sophisticated modern technology at its furthest limit. I am not advocating that we should build a CERN for Islamic countries. However, I cannot but feel envious that a relatively poor country like Greece has joined CERN, paying a subscription according to the standard GNP formula. I cannot rejoice that Turkey, or the Gulf countries, or Iran, or Pakistan seems to show no ambition to join this fount of science and get their men catapulted into the forefront of the latest technological expertise. Working with CERN accelerators brings at the least this reward to a nation, as Greece has had the perception to realize."

Since then, Pakistan and Iran have joined CERN collaborations and, if Salam were alive today, I am sure he would be delighted to see that aspects of his vision are at last being transformed into reality.

Further reading

P R Mooney 1999 *Development Dialogue* 1-2 19.

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