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EDITORIAL

Science and the Third World

More than three-quarters of the world's population lives in the Third World; a loose, depressing description of a large, diverse group of countries, which seem to be interminably involved in a futile struggle against the crushing burdens of poverty, disease, strife and increasing populations. Alfred Sauvy, a French demographer is credited with coining the phrase 'tiers monde' in 1952, presumably following the pre-revolution description in France of commoners as the 'third estate'. In France of the Bourbons, priests and nobles constituted the first and second estates. In our times the term First World describes the economically advanced countries of Western Europe and North America and Japan and Australia. The Second World was always a shadowy, imprecisely defined term, presumably encompassing the erstwhile Soviet Union and its East European satellites, countries with apparently impressive industrial and military strengths. But, in the aftermath of 'glasnost' and 'perestroika' the Second World seems to have disappeared, its constituents seamlessly integrating into the First and Third Worlds. Russia appears to be reclaiming a Western identity; East Germany has entered the realm of plenty, with reunification. In the aftermath of the declaration of the 'war on terrorism', television images suggest that Tajikistan, Turkmenistan and Uzbekistan may well qualify to join the swelling ranks of the Third World, which now cuts a broad swathe through Asia, Africa and Latin America.

In their drive towards development the larger countries of the Third World, China, India and Brazil are examples, have recognized the critical importance of science and technology; devoting the years since the 1950s to building up a significant infrastructure for research. But, research in modern science can be a lonely and sometimes unreal occupation in the poorest countries of the Third World. In a remarkably far-sighted move, the Pakistani physicist Abdus Salam realized the utility of forging collaborative interactions between Third World scientists and the importance of generating a transnational body 'to act as a pressure group to persuade Governments of the South to make the necessary commitments to scientific research'. Salam's vision led

to the birth of the Third World Academy of Sciences (TWAS) in 1981, which today has 480 Fellows from 62 developing countries. Twenty years after its founding, TWAS was scheduled to hold its 8th General Conference in New Delhi, beginning 27 October 2001. This issue of *Current Science* was intended to provide some images of science in the Third World and to welcome our colleagues to this country.

Unfortunately, the political problems of the Third World have overtaken the conference, leading to its postponement. Afghanistan, one of the poorest countries in the world, is now subject to the might of modern, military technology, ostensibly to strike at the heart of international terrorist organizations. Its impoverished citizens are being driven into refugee camps, from which the next generation of terrorists must inevitably arise. Afghanistan does not have a single member in TWAS, an indicator that there are still countries in the world, where the practice of science has to take root. Afghanistan is a stark reminder of the bottomless pit into which peoples and nations can sink, their slide promoted by the political imperatives of the First World. For the countries of the Third World, the path to development is tortuous and the obstacles formidable. Many countries have been very poorly served by their leaders, who have been propped up by First World countries, which generally view every international problem through the distorting prism of self interest.

In a world being driven, relentlessly by the West, towards a market economy, it has become imperative that Third World countries learn to stand on their own feet, strong enough to stem the tide of globalization. The forced liberalization of Third World economies, dictated by the World Bank and the International Monetary fund, is all set to create almost unacceptable inequalities, within the developing countries. The World Trade Organization (WTO) is ready to join the ranks of the forces that dictate Third World policies with scant regard for local imperatives. Almost a quarter century ago Mahbub Ul Haq delivered a judgement, which the Third World might well worry about: 'Markets...enrich the rich and pauperize the poor'. Other analysts

have also been very pessimistic, particularly of the slowdown in progress in the last twenty years: 'The Third World has had 40 years of development and things are not getting better...time after time development seems simply to modernize poverty at huge environmental cost' (Mayo, E., *New Economies*, 1993, 27, 7). This haunting conclusion might well be applicable to our many developmental projects, which have turned controversial, the Narmada dam amongst them. The strategists, who plan development in the Third World, must walk a tightrope to ensure that the path to progress does not cause irreparable environmental and societal damage. Both 'sustainable development' and 'sustainable consumption' are set to become the key phrases in discussions of Third World development.

Science and technology are, of course, central to the accepted routes to development. In an essay, a few years ago, José Goldemberg, of the University of Sao Paulo, Brazil, asked the key questions: 'What is the role of science in developing countries?' (*Science*, 1998, 279, 1140). Writing in the aftermath of the Indian and Pakistani nuclear explosions, he concluded, 'that development does not necessarily coincide with the possession of nuclear weapons or the ability to launch satellites'. In searching for a prescription for developing countries, Goldemberg argues that 'we...should not expect to follow the research model that led to the scientific enterprise in the United States and elsewhere'. In the most developed countries of the Third World, China, India and Brazil amongst them, a large and well developed science infrastructure has been built, over the past half century. There are clear and positive signs that the science and technology establishments in these countries are indeed gearing up to hasten the pace of progress and to face the challenges of a competitive, international marketplace. But, there are countries in the Third World, many in Africa, where the practice of science and access to modern technology is still extremely limited. Mohamed Hasan, President of the African

Academy of Sciences puts it bluntly: 'The truth is that stark disparities exist not only between Africa and the rest of the world, but between Africa and the rest of the developing world. What accounts for Africa's impoverished state? There are many political, socioeconomic and environmental factors. Centuries of foreign colonialism followed by decades of home grown authoritarian governments. A lack of transparency in economic transactions often accompanied by mismanagement. Unsustainable use of natural resources. Marginal participation in the global economy. However, there is another factor that may not be as visible or dramatic as those mentioned above but that may nevertheless play a central role in the continent's inability to participate in the global economy, protect its environment and devise sustainable strategies for economic growth. That factor is Africa's woeful shortcomings in science and technology.' (*TWAS Newsllett.*, 2001, 13, 4.)

The growth of the Third World Academy of Sciences provides a wonderful opportunity for collaboration and cooperation between scientists and their institutions in developing countries, spread across the globe. Working together on the many common problems that Third World countries face, scientists could become the front-line in promoting greater harmony, facilitating a purposeful attack on the formidable developmental issues faced by the poor countries. Thus far, the Third World has been ill-served by politics, religion and national, tribal and ethnic pride, all of which have largely promoted internal strife, external conflict, destruction and death. History hangs heavily upon the Third World; the past often providing a compelling rationale for the inequities of the present. But, it is time to look ahead. Cooperative science is a laudable human endeavour and may indeed help the Third World and its peoples move towards a better future.

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