

*International Development Research Centre*

plex problems and possibilities of international development has changed as a result of our collective experience during these two decades. We have learned that direct transfers of capital and knowledge cannot by themselves provide all the ingredients necessary for the advancement of the less developed countries. Their problems cannot be resolved by mere transfers of some of our wealth; they must be helped to develop their own capabilities of producing the wealth they require to meet the needs and aspirations of their people. If capital and technical assistance are to be effective, they must take root in the specific setting of each of the developing societies. This calls for a clear understanding of the basic social, economic, political and cultural forces which affect the processes of growth and development in each society. It requires the development of new ways of applying existing technologies to meet the particular needs of the less developed countries. It also requires a greater knowledge of the factors which enable such technologies to be used to achieve the social goals of the societies. It requires a concerted attempt to discover new technologies.

The gap between the low income and the wealthier nations of the world is to a large extent a science and technology gap. There has always been a gap between rich and poor within most societies, but the massive disparities between the nations of the less developed areas of the world and the more industrialized nations is a fairly recent phenomenon. The average inhabitant of Southeast Asia, prior to the industrial revolution, enjoyed a standard of life not so very different from his counterpart in Europe, despite the differences in their cultures and modes of life. Certainly, the vast material gulf which separates them today did not exist then.

In the last century, those nations which were in the vanguard of the industrial revolution have achieved unprecedented levels of economic activity. This has come about in large measure because of their ability to unlock the secrets of science and to develop technologies and techniques for the application of scientific knowledge to the processes of production and distribution. The burgeoning market economy of these nations continues to provide powerful incentives for the employment of our scientific and technological resources in the search for new products and processes for the affluent consumer.

There is no similar incentive to apply science and technology to the problems of the

less developed world. The very science and technology which has provided the key to the wealth of the industrialized nations has added to the difficulties of the less developed nations. Eradication of disease by mass immunization and the use of antibiotics has reduced death rates in the developing countries dramatically and brought about rapid increases in population. It has proven much more difficult for these countries to develop the increased productive capacity required to provide their growing populations with the basic ingredients that enable men to live in dignity. At the same time, science has devised synthetic substitutes for many of the natural products which these countries have depended upon for most of their export earnings. Despite the fact that in absolute terms the less developed nations have made a significant amount of progress in recent years, the gap between them and the wealthy industrialized nations continues to grow.

A recent study indicates that some 98 per cent of all of the world's research and development expenditures continues to be made in the wealthy, industrialized nations which already have high growth rates. There is almost as much money spent on research and development in the field of synthetics alone in the industrialized nations as is spent on all forms of research and development in the less developed world. The scientific advances and the new technologies which will shape tomorrow's world will come out of today's research and development expenditures. The relative position of the less developed nations can only worsen if the balance in the deployment of the world's scientific and technological resources remains so heavily biased against them.

It is not likely that this bias will be rectified except by a deliberate act of policy on the part of the industrialized nations who possess a near monopoly on the world's scientific and technological resources. A larger share of these resources must be made available to the less developed nations. One of the most practical methods of doing this is by devoting a portion of the funds available from wealthier nations under their development aid programs to this purpose.

Despite the fact that this need is fundamental to the whole development process and that this field is a new and complex one, less than one-half of one per cent of the aid budgets of donor countries is currently devoted to development research at a time when the average