

NAVIGATING THE MICROELECTRONIC LABYRINTH

By JACQUES DUPONT

Data processing and micro-electronics are sending unprecedented shock waves through modern society. To date, only the Western industrialized countries have conducted studies on the impact of new information technologies. In the Third World, the effects of such changes could turn out to be more negative than those feared by the industrialized countries.

Will a handful of technologically advanced countries restrict the role of all others to that of passive consumers of finished products? Is there too great a gap between the frontrunners and the developing world?

Mexico, India, Brazil, South Korea, and other nations strongly desire to profit from this veritable social revolution which has jolted the whole world. Economically speaking, the value of production of electronic goods is now greater than that of some of the more traditional industries such as oil, coal, steel, automobiles, and chemicals.

The application of microcomputers to all aspects of human organization is one of the distinguishing features of this decade. The developing countries have also adopted computer technology and are trying to devise ways to maximize its advantages. In Chile, for example, the first large computer was introduced in 1971. Now there are more than 1200 systems in operation despite the lack of an adequate educational and research infrastructure.

CHOOSING TECHNOLOGIES THAT FIT

It has often been said that it's absurd to talk of the Third World as if it formed a relatively homogeneous group. Where new technology is concerned the comment is even more justified. In the case of telephone service, for example, the differences in equipment between Africa and Latin America force one to distin-

guish between rich and poor countries, at least technologically speaking. Some countries have a great deal more capital available to them, an educational system that can respond to demands for new specialized training, and an industrial history of being able to take over a new technology for themselves.

NO IMPACT STUDIES

But do Third World governments, large and small, have the right tools to choose intelligently from among the numerous options put forward by the technological challenge of the modern age? "There are almost no impact studies of the new technologies," says Amitav Rath, Associate Director responsible for IDRC's Science and Technology Policy Program. "After all, the phenomenon is relatively new and dispersed, and impacts are difficult to categorize. In some areas — transportation and process control of capital-intensive plants, for example — computerization is essential. In sectors such as banking, countries have a little more choice, but the financial costs of saving jobs in this area are very high.

"Now that economic activity is more competitive and internationalized, can countries still think in terms of the conventional ways of doing things without running the risk of losing their competitiveness? Naturally, the poorest countries are the most vulnerable. They run greater risks of losing jobs than the more industrialized countries and of slipping back in the struggle for export markets."

A number of Third World countries have begun research efforts on the effects of microcomputers and microelectronics. They are among the nations best able, at the moment, to take advantage of new information technologies. Teams in Brazil, Korea, India, Mexico, and Argentina have linked up and will work to achieve a better understanding of this worldwide trend in "informatics".

Comparative studies of their experience should be useful to other developing countries that are beginning to search for national policies.

Another IDRC project is attempting to help Africans catch up in research, knowledge, and control of microcomputers, which are more likely than their technological predecessors to be useful, inexpensive tools. The Institute of Computer Science in Nairobi, Kenya, will provide better training for 20 people in data gathering and the management of software that can be used in small research centres.

Lastly, in Chile, the Centro de Estudios Sociales is working on a project to measure the penetration of computers in the country and to describe more thoroughly the socioeconomic environment in which they are operating.

MILITARY TECHNOLOGY

"A disturbing fact," Rath concludes, "is that quite a number of technological changes in the sector are of military origin. In the USA even today most software research is funded for military purposes. This makes access to new developments difficult for many countries."

In their book *L'ordinateur et le Tiers-Monde* (Computers and the Third World) published by François Maspero in France, Mattelart and Schmuchler write: "If there is to be a new balance of industrial development between the North and South, the North will have to give up treating the Third World as a collection of more or less solvent receptacles for products or factories, and draw them into the building of a new world economic order not restricted to expanding the limits of the North's markets." In order to see their way through the complex technological labyrinth, Third World countries will first have to learn how to use the new electronic tools to suit their own needs and aspirations. □