

# Aid to Developing Countries

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THE QUESTION of aid to developing countries presents several fundamental difficulties. In both the domestic context and the international diplomatic world, the word "aid" has particular connotations that closely suggest charity. Besides provoking the justifiable sensitivities of some recipient countries, the term "aid" is misleading. An article in the March 26, 1979 issue of *Time* magazine<sup>1</sup> indicated that the material results of this so-called aid are often significant and mean good business for the donor country. For example, according to the same article, for every dollar that the United States contributes to international financial institutions that give aid, the recipients spend two dollars to buy goods and services in the United States. For every dollar paid by the United States into the World Bank alone, \$9.50 flows into the nation's economy in the form of procurement contracts, operations expenditures, and interest payments to investors in the bank's bonds. In short, this essay underlines that "the United States does well by doing good."<sup>2-3</sup> Perhaps the term "cooperation" explains better what we have in mind when dealing with the North-South relations.

Another concern is the almost inevitable degree of generalization that accompanies discussions of Third World issues. In any discussion of the use of science and technology for development there is a danger that undue focus will be placed either on the science and technology dimension of this admittedly complex issue or on the aspect of development. There is not sufficient understanding of the needed interaction between the two. Also there is the danger of oversimplification in dichotomizing "developed" and "developing" countries. At the least, a grouping of countries according to their resource endowment, their per capita income, their cultural specificity, their climatic and geographic conditions—to note only some variables—is needed before any sort of conclusive analysis can be made.

A starting point for our discussion should be the generally accepted, although ill-defined notion that science and technology is an important, if not decisive, factor in the development process of nations. And it is at

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this early stage of deliberation that the difficulties in understanding this complex issue begin.

As Thorkil Kristensen observed:

Looking at the world today, we find that the most decisive difference between what we call more or less developed countries is that the former are able to apply modern knowledge to a larger extent than the latter. This is why the more developed countries are richer. It is therefore a major aim of the poorer countries to have more and more of this knowledge applied to their various activities in order to reach higher economic levels.

He concluded from this that "it is misleading to talk about 'developed' and 'developing' countries." No country is fully developed, he says, since no country can have all of the possible knowledge applied to all its activities.<sup>4</sup>

The same line of thought is followed by the signatories of the Andean Pact (the so-called Cartagena Agreement). The introduction to their technology policy concept contains the statement: "The stock of available knowledge and its adequate use is a decisive factor in the ability of a society to fulfill its economic and social needs."<sup>5</sup> The international dimension of this issue within the present North-South dialogue is illustrated in the following statement: "... the stock of scientific and technological knowledge available to a country, which it incorporates into its production activities, is a power element, and is reflected in the country's relationships with the rest of the world. Technological superiority has political significance and as the key that distinguishes interdependence from dependence, fluctuates continually according to the access to scientific and technical advances, and the degree to which advantages are actually realized."<sup>6</sup>

Consequently, while preparing for the forthcoming United Nations Conference on Science and Technology for Development (UNCSTD), member States—particularly those from the Third World—are putting greatest emphasis on the need for all countries to share existing scientific and technological knowledge. This is reflected in the fact that, at the recent third session of the Conference Preparatory Committee, the following item was introduced as Target Area No. 1 of the Conference itself: "Willingness and preparedness to share the knowledge and experience gained by each country through its own efforts to achieve political, economic and social self-reliance are inherent to subscribing to the concept of global interdependence and true cooperation between all countries."<sup>7</sup>

A number of proposals have been made on how to reach this target: (1) creation of international cooperative information systems and networks; (2) facilitation of access of developing countries to the knowledge

available in developed and other developing countries; (3) promotion of mechanisms for person-to-person exchange of information; (4) research and development (R&D) by developed countries devoted to specific problems of developing countries; and (5) cooperative R&D.

Although it is relatively easy to make up such a list of demands, which are all meaningful and important, the actualization of such targets does not depend solely on the availability of financial resources and the existence of political will.

Knowledge is not value-free. In the statement from the Andean Pact Technology Policies, an important distinction was made between "production technology" (that is, the knowledge essential to transform inputs into products or services) and "consumption technology" (that is, the characteristics of the goods and services that satisfy or induce requirements at the consumer level). Such technological knowledge tends to reflect the multiplicity of consumer and producer motivations inherent in both the innovating industry and the target clientele; and these are constrained by cultural patterns and historical evolution, by access to capital market size and profit opportunity, by perceptions of what contributes to a good quality of life, and by economic, social or political status.

Consequently, countries importing technologies either for production (that is, how to organize, design, produce) or consumption (that is, what goods will be available to consumers) are simultaneously buying an implicit set of values which may or may not mesh with their own preference systems.

At present, it appears that no single country in the world has been able to solve this inevitable value conflict. In order for developing countries to reach some sort of industrial parity, they must catch up with developed ones. However, industrialization automatically implies the application of scientific and technological knowledge and values. It is the equating of industrialization with development that causes many of the disillusion and misconceptions faced by Third World countries today in their struggle to determine their own economic, social and political fates.<sup>10</sup>

A point related to the issue of sharing knowledge is the question of transferability of "old" knowledge, as distinct from the necessity of generating "new" knowledge. In the assertion of the need for R&D, too much emphasis, according to a recent OECD Workshop on Scientific and Technological Co-operation with Developing Countries, has been put on research leading to the creation of new knowledge, whereas for developing countries, the problem essentially lies in setting conditions that would favor the utilization of knowledge, much of which is already at hand. However, there has been a high entry fee for converting new

knowledge into usable technologies, which developing countries have not been able to "pay."<sup>11</sup>

Another interesting idea was advanced at this OECD workshop. Participants appeared to be more of the opinion that the quantum of existing usable knowledge is relatively small and perhaps even declining in the face of new exigencies, including the large unknowns of the physical and social environment in which the poor of the developing world are to be found, and new perceptions of the character and function of technology in a basic human-needs development perspective. If anything, they suggested, the future will demand a far greater capacity to generate new knowledge.<sup>12</sup>

The capacity of developing countries either to absorb or adapt existing scientific and technological knowledge or to create new knowledge better suited to their own needs is the key issue, to which all other issues concerning science and technology for development must ultimately relate.

As E. F. Schumacher stated so well, "Development does not start with goods, it starts with people and their education, organization and discipline. Without these three, all resources remain latent, untapped, potential."<sup>13</sup> He went on to say that

... development cannot be an act of creation, that it cannot be ordered, bought, comprehensively planned; that it requires a process of evolution. Education does not jump, it is a gradual process of evolution. Education does not jump, it is a gradual process of great subtlety. Organization does not jump; it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must be to speed this evolution. All three must become the property not merely of a tiny minority but of the whole society.<sup>14</sup>

To quantify the order of magnitude of this problem, let me quote a few figures. Of the more than 4 billion people on earth, some estimated 800 million adults are illiterate. Practically all of them live in developing countries. Furthermore some estimated 250 million children of school-age are not enrolled in schools and practically all of these children live in developing countries.<sup>14</sup>

Of more immediate relevance to the absorptive or generating capacity of developing countries is the distribution of R&D expenditures and manpower. The latest available figures date from the year 1973. Of the estimated total world expenditures for research and development amounting to 109 billion dollars, only 2.3 percent has been spent in developing countries. The ratio in scientific manpower is slightly more favorable: of the estimated total world figure of 4,950,000 scientists and engineers, some 12.0 percent live in developing countries.<sup>15</sup>

To balance this unsatisfactory situation, a number of political, philosophical or simply "pragmatic" approaches have been put forward by the developed countries, by the developing countries themselves, and by both groups. Most prominently, the developing countries proposed the concept of the "New International Economic Order," which was accepted during the VIth and VIIth special sessions of the United Nations General Assembly by all member States. In addition, there is the "World Plan of Action for the Application of Science and Technology to Development,"<sup>16</sup> which the Advisory Committee on the Application of Science and Technology to Development prepared for the Second United Nations Development Decade. Furthermore there is the series of United Nations Conferences and of conferences organized by the specialized agencies of the United Nations system. Each of them resulted in recommendations, plans of action and resolutions that have particular salience to science and technology and their relationships to development.<sup>17</sup> A vision of self-reliance or of collective self-reliance is held by developing countries.<sup>18-21</sup> This concept has been introduced by some Third World leaders like President Nyerere of Tanzania. It had been articulated earlier, in political terms, by Presidents Nasser, Nehru, and Tito, who founded the movement of the "nonaligned" states. The rather idealistic idea of self-reliance has been put, by means of the multilateral negotiation machinery of the United Nations, into a program framework of economic cooperation among developing countries and of technical cooperation among developing countries.

The most comprehensive political framework of all these concepts is the one called the New International Economic Order (NIEO). All North-South discussions at present on the world agenda should be seen under this rubric.

The NIEO has a number of aspects dealing with science and technology:

- (1) the cooperation of developed and developing countries in the establishment, strengthening, and development of the scientific and technological infrastructure of developing countries;
- (2) the significant expansion of the assistance of developed countries in direct support of the scientific and technological programs of the developing countries, in accordance with feasible targets to be agreed upon;
- (3) the substantial increase of the proportion of the research and development in developed countries devoted to the specific problems of primary interest to developing countries and to the creation of suitable indigenous technology, also in accordance with feasible targets to be agreed upon;

(4) the expansion of international cooperation on the basis of principles and regulations designed to adjust the scientific and technological relationships among States in a manner compatible with the special requirements and interests of developing countries, especially in the transfer of technology.<sup>22</sup>

In contrast to the developing countries' proposals for an NIEO, the developed countries did not introduce a comprehensive view, concept, plan or program that would define a world development guaranteeing a sustained growth for all countries of the world. This is, I believe, a severe omission and it makes the ongoing North-South dialogue even more difficult.

Of course, there are numerous, rather academic attempts by the Western industrialized countries to look into both global issues (which includes the development of developing countries) and partial aspects of development through the application of science and technology with particular emphasis on developing countries. Examples of these attempts include the World Problematique of the Club of Rome,<sup>23,24</sup> the RIO-Project of Professor Tinbergen,<sup>25</sup> and the Leontief model of world development.<sup>26</sup> Further, concepts have been advanced to re-emphasize the quality of life,<sup>27</sup> to meet basic human needs, particularly in developing countries,<sup>28-32</sup> or temporarily to delink certain developing countries from the general trends of development in the world.<sup>33,34</sup>

We have to accept that the leaders of developing countries regard with suspicion such concepts aimed at "helping" developing countries. We have to accept that the development, for multilateral negotiation within the United Nations, of appointed spokesmen for groups of countries (the Group of 77 for developing countries, Group B for the Western industrialized countries, and Group D for the eastern socialist countries) may have favored group bargaining positions that are largely based on mutual mistrust.

What is now needed is an emotion-free, objective, disinterested assessment by all concerned—North, South, East, and West—of what we mean by "development." Only when this is better understood will we be able to consider in depth which mechanisms for aid and cooperation can be mobilized to achieve the desired end. Only one of these mobilizing factors will be science and technology.

I am pleased to see at this particular time that because of the worldwide preparations for the United Nations Conference on Science and Technology for Development, the topic of our working group at the present Conference has received widespread attention. What worries me, however, is that the level of expectation of what science and technology can do for national, regional and world development has been raised to a

point almost beyond reach. Some observers feel that the disillusion after Vienna may be damaging to the science and technology community in many countries—developed and developing—for a number of years, unless it can be demonstrated not only *what* science and technology can do, but also and more importantly, *how* this can be done. To achieve this, discussion on the topic of science and technology for development should not take place only within diplomatic United Nations gatherings.

It is also necessary to reach out by revising existing bilateral governmental relations so that a visible interest in science and technology will be maintained. In addition it is important to reach out to industry and to academia. It is difficult, if not impossible, to foster a new understanding of the role of science and technology for development if the nongovernmental community, which is vital for any "action implementation," is not fully aware of a developing country's sensitivity to a paternalistic development concept proposed, even with best intentions, by a developed country.

Instead of offering easy conclusions, I would like to present—in the form of questions—some of the underlying psychological obstacles that make the current debate on science and technology for development so difficult:

1. What developing countries do we mean when talking about the Third World? Do we sufficiently differentiate the quite different characteristics of these countries?
2. Which "development" do we have in mind when offering "aid" through science and development?
3. How long does it take to create an adequate science and technology infrastructure in developing countries so that they are enabled to act as equal partners in the present North-South dialogue and to define their own interests? What can we do to accelerate this process.
4. What do we mean by "appropriate technology" for the developing countries?
5. What are the arguments in the controversial "basic human needs" debate?
6. Why is the "technology transfer" issue of such emotional importance?
7. Do we mean self-interest when we say "aid"?
8. Do we believe in an egalitarian concept of "world development," in which we want to share our skills and our knowledge? Or are we pleased with the "status quo," which we seek to preserve by "buying time" through some form of charity?

9. Should a common concept of science and technology for development be held by all developed market-economy countries (for example, through the OECD)? Or should each government continue to tackle this issue in its own way?

10. Are we losing sight of the pressing issues facing all mankind because the present world debate is focusing almost exclusively on North-South issues?

It is hoped that a better understanding of these issues will lead to more productive and constructive policies for the application of science and technology for development.

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