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**Final Report**

# **SCIENCE, TECHNOLOGY, AND DEVELOPMENT**

**Results of a program conducted by the International Management and Development Institute for the U.S. Department of State, as a contribution to U.S. preparations for the United Nations Conference on Science and Technology for Development.**

**Editor: B.C. Christensen, Vice President and General Manager, IBM World Trade Corporation;  
Member, IMDI Board of Directors**

**Associate Editor: Danelle K. Simonelli, Program Director, IMDI**

**January 1979**



# International Management and Development Institute



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### Foreword

The purpose of this Report is to present to the United States Government the results of the program on "Science, Technology, and Development" co-sponsored by the U.S. Department of State and the International Management and Development Institute (IMDI).

The conclusions drawn here represent a summary by IMDI of the diversity of views expressed by U.S. corporate participants in the program's Top Management Questionnaire and Top Management Roundtables, both of which were conducted in the fall of 1978.

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This Report should not be considered a statement of the views or policies of the International Management and Development Institute, the U.S. Department of State, the IBM World Trade Corporation, or any single individual or organization participating in the "Science, Technology, and Development" program.

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## I. INTRODUCTION

This Report is the result of a unique joint venture of the U.S. Government and U.S. business. As a businessman, I find it most encouraging that the Government asked the business community to help formulate the U.S. position on a global issue that has enormous implications for business.

The response from corporations has been very rewarding and displays both a positive attitude on being involved and a willingness -- even anxiousness -- to deal objectively and constructively with a most complex and difficult subject, a subject which has been treated in the past in highly emotional and confrontational terms. The corporate executives participating in this program represent a wealth of experience and understanding of the totality of technology transfer, including the transfer of human knowledge that is all-important to the process.

The results of this work are, I believe, quite significant and deserve careful and thoughtful consideration in the formulation of the U.S. position paper and the instructions to the U.S. Delegation to UNCSTD in Vienna later this year.

I will not try to summarize the Report here; the Report really should be read in its entirety to appreciate its message. However, I would like to suggest a framework for that reading of four points which have struck me as fundamental to an understanding of the American business community's thinking on technology transfer:

1. In our economic system, technology is largely private property, not the "common heritage of mankind" as has been claimed on occasion in the past. Therefore, it will not be transferred unless the conditions are right, unless it is mutually beneficial. There is no power on earth that can force a private corporation to transfer its technology if it doesn't choose to do so.
2. While business feels on balance that the existing mechanisms for technology transfer are adequate, if properly understood and utilized, there is a surprising degree of flexibility and openness in its attitude toward possible modifications and its willingness to negotiate on almost any aspect of the process.
3. The infrastructure of developing countries is of paramount importance in technology transfer, both to the suppliers and to the recipients of technology -- a point very often overlooked or ignored in many quarters. To use a sports analogy, the infrastructure provides the catcher's mitt, and if it is not there or is inadequate, the pitch won't be caught.

Within the infrastructure, education and training, are perhaps the most important elements. They probably should be given the highest priority by governments of both developing and developed countries and by the private sector as well.

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4. The role of governments on both sides should be to create an environment which will encourage technology transfer, not discourage it. Consistency, stability, and predictability characterize an encouraging environment; controls, regulations, and mandatory guidelines characterize a discouraging environment. At the least, governments should remove obstacles and let nature take its course, so that the private sector can fulfill its own essential role in the process.

Until now, most press coverage and most debates on this subject have tended to draw battle lines, characterizing it as a confrontation between the rich countries and the poor countries. Nothing could be more counterproductive. This exercise has shown that the typical U.S. business executive is sympathetic to the aspirations of the developing countries, understands their needs and problems, and is willing to go more than halfway to meet them. Executives are in particular well aware of the great contribution that their companies can make to the education and training of individuals in developing countries, and they are willing to make such a contribution that benefits all those involved.

The creative suggestions in this Report should be heard and taken seriously by our own Government and those of the Third World. Let's do our utmost to ensure that UNCSTD is a creative and positive milestone, not a destructive one.



B.C. Christensen  
Vice President and General Manager  
IBM World Trade Corporation  
January 1979

## II. OVERVIEW OF PROGRAM

### Basic Elements

The "Science, Technology, and Development" program was conducted throughout 1978 and into 1979 by the International Management and Development Institute (IMDI) and was co-sponsored by the U.S. Department of State and IMDI. The project's purpose was to assist the U.S. Government in its preparations for the United Nations Conference on Science and Technology for Development (UNCSTD), to be held in Vienna in August 1979. The aim was to generate U.S. corporate input, from the very highest echelons of management, on those technology transfer issues which are likely to be discussed at UNCSTD and which affect both U.S. foreign policy and the operations and effectiveness of U.S. business in its dealings with developing countries.

The IMDI project consisted of four basic elements:

1. A background Situation Briefing;
2. A Top Management Questionnaire;
3. Four regional Top Management Roundtables; and --
4. This Final Report to the State Department.

The steps leading up to the present Report will be described in some detail below.

Two advisory committees and a team of cooperating organizations and individuals provided invaluable advice and assistance throughout the course of the "Science, Technology, and Development" program. A Steering Committee of senior-level advisors provided overall guidance for the project, with emphasis on what would be achieved in the Top Management Roundtables. In parallel, a Task Force of experts in the field of technology transfer reviewed drafts of background materials and contributed their comments and value judgments at each step of the way.

To conduct the regional activities involved in setting up the four Roundtables, IMDI established linkages with Regional Chairmen, Coordinators, and cooperating organizations throughout the country. The list of cooperating organizations, as well as the roster of Steering Committee and Task Force members, is contained in Appendix 1. Other highlights of the four regional sessions are as follows:

<u>Roundtable</u>	<u>Chairman</u>	<u>Coordinator</u>
New York November 6, 1978	Ralph A. Weller Chairman and CEO Otis Elevator Company	Wallace B. Edgerton President Institute of International Education
Chicago November 8, 1978	Russell Baker Senior Partner Baker & McKenzie	Thomas H. Miner President Mid-America Committee

<u>Roundtable</u>	<u>Chairman</u>	<u>Coordinator</u>
Los Angeles November 13, 1978	Justin Dart Chairman and CEO Dart Industries Inc.	James O. Lindberg Vice President Dart Industries Inc.
Atlanta November 16, 1978	Robert B. Ormsby President Lockheed-Georgia Company	Peter C. White President Southern Center for International Studies

Our sincere appreciation is extended to those individuals and organizations whose contributions made possible the substantial results achieved in the course of this program.

#### Situation Briefing

In order to set the context for the IMDI program and provide background information to participants in that effort, the Institute in October 1978 published a Situation Briefing on "Science, Technology, and Development."

The Situation Briefing summarizes the history, major issues, and proposals to date in the field of science and technology for development. Based on study of the extensive research that had already been done on the subject, it is in part a condensation of the substance and major conclusions of a number of recent reports and conferences involving the business community. A four-page Executive Summary serves to present the technology transfer issue in an even tighter nutshell for quick reference.

The Situation Briefing was furnished to all participants in the four Top Management Roundtables, and its Executive Summary was included with the Top Management Questionnaire. The full document is available separately from IMDI; the Summary appears in Appendix 2.

#### Top Management Questionnaire

The Top Management Questionnaire on "Science, Technology, and Development" was distributed in September 1978 to chief executive officers of major U.S. international companies, including members of IMDI's Corporate Strategic Planning Council. The approximately 100 respondents represent all senior levels of management and a variety of sectors in the U.S. economy.

The Questionnaire examined the same issues discussed in the Situation Briefing, transforming them into a six-page, multiple-choice survey for easy response by corporate executives. Geared toward the forthcoming U.N. Conference, it also included one request for respondents to outline in their own words the major recommendations they would make to the U.S. Delegation to UNCSTD.

A complete Questionnaire with tabulated numerical responses will be found in Appendix 3; a breakdown of respondents by type of firm and title of person responding, along with a list of companies responding, comprises Appendix 4. The results of the survey are discussed in detail in Section III of this Report.

### Top Management Roundtables

The four Top Management Roundtables on "Science, Technology, and Development" were held across the country from November 6 to 17, 1978. The meetings were held respectively in New York, Chicago, Los Angeles, and Atlanta.

In response to IMDI's invitation, approximately 30 participants (50 in New York) attended the main all-day session in each city. (The Roundtable announcement is in Appendix 5.) The majority of attendees in each case were senior executives of U.S. international companies, including representatives of small and medium-size firms as well as large multinationals. Also in attendance were members of the Office of the U.S. Coordinator for UNCSTD, representatives of the Commerce Department and of business organizations, and individuals from developing countries familiar with the role of the private sector in technology transfer. Appendix 6 contains the complete participants list for all four Roundtables.

The format of the meetings -- as shown by the agendas in Appendix 7 -- emphasized small-group discussion by corporate executive participants, introduced by brief background speaker presentations. Those present were asked to focus their discussion on two sets of questions, which paralleled the issues covered in the Situation Briefing and Questionnaire but focused in much greater detail on the area of corporate and government action proposals. The worksheets containing these questions will be found in Appendix 8. Discussion leaders in each group were also provided with more specific supplementary questions to use as needed.

After each small-group period, discussion leaders reported back to the plenary session the findings of their groups, and rapporteurs turned over summary notes to the IMDI staff. Overnight these rapporteur notes were organized and typed. (They are available from IMDI for reference in that form.) The morning after each Roundtable session, a regional steering committee met to review that Roundtable's conclusions and condense the rapporteur notes into a two-page listing of the most important recommendations. The four sets of summary highlights will be found in Appendix 9.

While each of the four Roundtables was unique in character and its participants were left to draw their own conclusions, many common themes emerged as succeeding Roundtables consciously or unconsciously endorsed and built upon the results of previous sessions and of the Questionnaire. The combined conclusions of all four meetings are discussed in Section IV below.

### III. RESULTS OF QUESTIONNAIRE

The questions asked in the IMDI survey of corporate views on "Science, Technology, and Development" fall into three broad categories: first, identification of the key issues under the heading of "technology transfer"; second, identification of developing country needs and concerns, and responses to those concerns; and third, proposals for action to deal with the situations described. Respondents were also asked to conclude by summarizing their recommendations to the U.S. Government into a few key points.

Responses to each of these sections will be described in turn below. For the exact wording of questions and breakdown of responses, please refer to the tabulated Questionnaire in Appendix 3.

#### Key Issues in Technology Transfer

Effectiveness of present mechanisms. Corporate respondents to the Questionnaire were first asked if they were satisfied with present methods for the transfer of technology to developing countries.

About 36 percent replied that there is significant room for improvement in current transfer mechanisms, to be achieved through negotiations between the parties involved. Almost as many respondents (32 percent) thought that the present system for transfer of technology works well in theory but needs to be better understood and implemented in practice. Only 17 percent said that the system needs no improvement whatsoever.

A significant number of respondents (7) expressed dissatisfaction with the language of the question, asserting that there is no "present system" as such for technology transfer -- or that at least the Questionnaire does not define what it means by such a system.

The general conclusion to be drawn from this question, however, is that U.S. companies are not as inflexible or "status quo" as they are usually portrayed in relation to the transfer of technology to less developed countries (LDCs). Many executives would in fact agree with LDC spokesmen that the current situation in science and technology for development is not necessarily optimum.

The international agenda. In section B, respondents were asked which issues raised by LDCs in international forums are valid concerns, and on which issues the respondents feel there is room for negotiation with developing countries.

The response indicates that LDC concerns over the appropriateness of technology to their needs and over the need to develop indigenous technology are seen as legitimate (by 67 and 83 percent of the respondents respectively). In other words, developing countries have a right to be concerned that the transfer of technology produces real development.

On the other hand, regulation is not seen by corporate executives as the way to promote such development: 60 percent of the respondents said that desires for increased national regulation are not valid, and 65 percent said the same for international regulation such as a Code of Conduct. LDC concerns about alleged "unfair practices" on the part of multinational corporations (MNCs) are also seen as unjustified by 59 percent of the respondents.

However, on every item a greater number of respondents checked "yes" on "room for negotiation" than checked "yes" on "valid concern." With the exception of regulation, most corporate executives are willing to negotiate even where they believe LDC concerns are unjustified.

This also indicates great corporate flexibility. Although MNC feelings are clear on what the valid issues in science, technology, and development are, there is a great willingness to discuss concerns of the developing world and negotiate mutually satisfactory solutions.

Domestic issues. Section C asked the views of respondents on three items of domestic concern related to U.S. international technology policy: how transferring technology affects U.S. competitiveness and U.S. employment, and how it relates to the U.S. quality of life.

A mixed response was obtained regarding the effect of technology transfer on American competitiveness in world markets and on domestic employment. Almost none of the respondents agreed with the statement that the effect was absolutely negative (i.e., that transferring technology has a definite harmful effect on U.S. competitiveness and on the number of jobs at home). There was a split, however, between those who asserted that the net effect is positive and those who said that there is some truth to the statement, i.e., that a "mixed bag" effect exists.

This split probably arises from respondents choosing to adopt either a long- or a short-term view of the situation. In the short term there are clearly instances where the transfer of technology by the United States harms the competitiveness of particular sectors of the American economy vis-à-vis their counterparts abroad. Similarly, such transfer of technology may result in an immediate loss of U.S. jobs in a particular sector. In the long term, however, the international transfer of technology is a process that benefits all parties involved and a critical part of a healthy, growing world economy. It promotes the continued technological progress of suppliers as well as recipients and creates new opportunities for employment on all sides in the process.

As to the quality of life, 80 percent of the respondents rejected the idea that the United States must make sacrifices -- e.g., reduce its level of consumption -- in order for LDCs to improve themselves. Continued U.S. prosperity and technological progress, rather than simple "division of the wealth," are essential if all parties are to benefit through international science and technology.

The conclusion to be drawn from this section, therefore, is that effective technology transfer is a process that should benefit all parties involved, including the United States as a major supplier of technology.

Developing Country Needs and Concerns

LDC infrastructure. The next set of questions asked which sectors related to LDC science and technology capabilities need the most improvement and in which of these areas MNCs can most help out.

Respondents checked multiple sectors in answer to both inquiries. This implies that improvement in any and all major LDC infrastructure sectors would help to make the transfer of technology more effective and that multinational companies have great experience in all of these areas.

Management know-how (checked by 89 percent of the respondents) and skilled labor (77 percent) were rated the highest as LDC needs. This indicates the importance of the non-material component of technology and of its transfer -- the fact that human ability to use technology is at least as crucial as possessing the physical hardware to do a particular job. Also rated high were engineering expertise and the communications and transportation sector, each checked by 64 percent of the respondents.

Basic science and R&D were rated the least important LDC priority, cited by only 28 percent of those answering the Questionnaire. The implication in this response is that developing countries should not concentrate on "reinventing the wheel" through their own basic research, but should emphasize learning more practical skills that help them better absorb and use technology from whatever source.

The top-rated potential corporate contribution coincided with the area of perceived greatest LDC need in their science and technology infrastructure: management know-how (again checked by 89 percent of the respondents). This area thus emerges as an obvious one for cooperative action to develop LDC capabilities involved in the transfer of technology.

Other high-rated sectors where companies can help include engineering expertise (checked by 81 percent) and marketing and distribution (64 percent).

According to section D, therefore, there is both a great LDC need for infrastructure improvement related to science and technology and great MNC potential to meet that need, particularly in the critical area of training of managers and technicians.

Regulation. Since government regulation is a major LDC response to try to make the transfer of technology more effective, this question asked respondents which forms of regulation they thought would be constructive in this area and which mechanisms would be counterproductive.

Approximately 90 percent of the respondents thought that all forms of binding regulation are as a rule counterproductive. This includes national legislation by both home- and host-country governments (in this case, generally the U.S. and LDC governments respectively) and the idea of a binding international Code of Conduct on the transfer of technology.

On the other hand, about 73 percent thought that non-binding methods of regulation are generally constructive ways to approach the improvement of

technology transfer. The mechanisms mentioned were model clauses provided by governments to guide individual contract arrangements, and an international Code of Conduct consisting of non-binding guidelines.

In the U.S. corporate opinion, therefore, binding restrictions on the transfer of technology generally defeat their stated purpose of improving the process. Government guidelines for transfer arrangements are useful, however, since they can provide consistency and steer action in desired directions without creating inflexible obstacles.

#### Proposals for Action

This section concentrated on specific proposals for action to improve the transfer of technology that have been advanced by developing country, corporate, and other spokesmen.

Respondents were asked to rate each of a series of proposals according to how useful it would be to promote more effective technology transfer. Point values were assigned to different responses: two points for "very useful," one for "useful," minus one for "not useful," and minus two for "counter-productive." Then the total points by all respondents were added up to assign a rank to each proposal.

The three top answers -- all within a very close point spread of each other -- were:

1. Increased incentives by LDC governments to create a more attractive environment for MNC operations (136 points);
2. Management consulting provided to LDCs, to help them identify their technology needs in terms of realistic development goals (135 points); and --
3. Increased joint ventures between multinational suppliers of technology and LDC recipient firms (132 points).

Other answers rated as quite useful included incentives by developed country governments (105 points), encouragement of indigenous technology by LDC governments (100 points), and direct dialogues between MNCs and LDC governments (91 points).

The two proposals rated by far as the most counterproductive were increased legislation by LDC governments to regulate the transfer of technology (-170 points) and a binding international Code of Conduct on the subject (-150 points). Respondents also frowned upon a broader role for the World Intellectual Property Organization (-83 points) and other reform of the international system of patents, trademarks, and copyrights (-43 points).

These responses add up to the opinion that devices which help LDCs make better use of current market mechanisms for technology transfer -- techniques such as consulting, joint ventures, and dialogues to resolve problems with the present system -- hold the most promise for actual improvement of the transfer process to LDCs. Technology transfer is considered to be most effective when it is left to the parties directly involved (e.g., supplier and recipient enterprises) to work out the details.

The most effective government role is believed to be through provision of incentives to encourage private sector activities geared to meeting LDC needs. This includes encouragement of indigenous LDC technological development. Binding regulation should definitely be avoided, say respondents, as should tampering with the international system of property rights -- but a non-binding Code of Conduct is viewed positively. Increased official aid by developed country governments is not seen as a major means toward improving the transfer of technology.

#### Overall Recommendations

By way of summary, respondents were asked to list the two to four key points they thought that U.S. representatives to UNCSTD should keep foremost in mind.

A wide range of answers were given, but several points were repeated often. Two major themes emerged:

1. Technology is hard-earned private property. Rights to it must be respected, and its transfer depends on receiving adequate payment to cover return on investment.
2. Government regulation generally impedes the transfer of technology, and it should therefore be minimized. The role of governments should be limited to removing obstacles so that the free market system can operate unhindered.

Various other points were mentioned repeatedly, although not as universally as the two above. In approximate order of frequency, these other recommendations and comments include:

1. LDC governments must provide a favorable environment for the transfer of technology. This includes a stable investment climate, consistent policies, and incentives to MNC operations.
2. Developing countries need to improve their choice of technologies and to set clear and realistic development plans and priorities.
3. Improvement of LDC capabilities to absorb and use technology in the long term is a major element in making the transfer of technology more effective, often more important than the method of transfer itself. The importance of management know-how, education, and other non-material components of technology must be recognized.
4. Joint ventures between foreign and indigenous enterprises in the LDC are very useful, as are other direct mechanisms and dialogues at the company or technical (rather than political) level.
5. There must be mutual benefit, mutual understanding, and respect for the interests of all parties for any transfer of technology to work.
6. A wide variety of technology transfer situations exists, involving different types of LDCs, different types of MNCs, and different types of technologies. For this reason, the flexibility of participants to

choose whatever transfer arrangement best suits the particular situation should be maximized.

7. The U.S. Government should take a more positive attitude toward the transfer of technology and toward multinational companies. Implementation of this might involve the creation of tax incentives, the reduction of barriers to trade and foreign investment, and the education of others -- at UNCSTD and elsewhere -- on the free enterprise system and the benefits that come from MNCs.

While respondents were often quite blunt and forceful in conveying their recommendations on what should be done, the overall tone of the answers was positive. It is clear from the findings that the MNC has enormous potential to be the most effective and productive medium for the transfer of technology to developing countries.

#### IV. RESULTS OF ROUNDTABLES

The two discussion workshops at each of the Top Management Roundtables dealt with the international agenda of issues in science, technology, and development -- designed to assess the general corporate attitude toward the subject -- and specific proposals for action by business and government, both individually and collectively, to improve the transfer of technology to developing countries.

This Section will summarize the combined results of all four sessions. Please refer to Appendices 5 through 9 for the agendas, participants, and highlights of the individual Roundtables.

##### The International Agenda

Effectiveness of present technology transfer methods. Participants were first asked whether they thought that present mechanisms for the transfer of technology to LDCs are adequate to meet the needs of all parties or if some reforms are required.

It was felt by participants throughout the exercise that the present market system for technology transfer generally works well. Its basic characteristics should be maintained as a firm basis upon which to improve.

Two major areas for improvement, however, were identified at all four Roundtables:

1. More mutual exchange of information between LDCs and developed countries is necessary. This exchange should include more explanation of how present technology transfer mechanisms work -- for example, why technology is transferred and how this transfer can be encouraged -- and better communication and mutual understanding of the needs, objectives, and capabilities of both sides.
2. The U.S. Government should increase its support of the transfer of technology by the private sector. Useful Government action might include coordination of U.S. export policy, more support for U.S. companies in the field abroad, creation of incentives and removal of obstacles to technology transfer, promotion of dialogues between MNCs and LDCs, and facilitating (e.g., as a clearinghouse) the exchange of information recommended above.

(These general observations are elaborated in later sections.)

All four Roundtables also observed that actual government intervention and regulation generally impede technology transfer and should therefore be kept to a minimum. It was felt that governments should concentrate on providing a favorable environment (i.e., incentives and removal of obstacles) and let the market system do the rest.

Many participants noted the flexibility of the present system to suit the requirements of different technology transfer situations, reinforcing the need to allow the parties in each particular case to determine the best arrangement for the transfer. Several groups remarked, however, that more emphasis should be placed on developing the user or recipient side of technology transfer -- on an LDC's ability to absorb and use technology -- rather than on sources or methods of transfer. Many underscored the need for greater recognition that there must be mutual benefit for the transfer of technology to occur.

The UNCSTD agenda. The next question asked what issues the Roundtable participants would like to see discussed at the forthcoming U.N. Conference.

The question brought a mixed response. On many issues, strong U.S. business views exist and should be understood by members of the U.S. Delegation and by other countries, but participants disagreed as to whether the formal UNCSTD deliberations are the best place to discuss such matters. Some said that all issues should be open for free discussion to increase understanding of each other's views. Others felt strongly, however, that discussion of generalities in a political forum should be avoided in favor of letting the parties in each individual technology transfer situation work for solutions on a practical level.

Subjects discussed in this context at the Roundtables include:

1. The price of transferred technology: all felt that receiving an adequate price for technology (i.e., letting the market work) is crucial to its effective transfer, but different views were expressed on how to get this point across to LDCs. Some said that the subject of price is non-negotiable and therefore should be avoided, but others said it must be brought up in order to make a strong presentation of the U.S./MNC viewpoint. The split among those discussing this issue was rather strong.
2. Property rights: participants felt that the U.S. should strongly support their protection when the subject comes up, but again there was a split as to whether or not it should be a major topic of discussion.
3. Codes of Conduct: a majority felt the question of such codes should be avoided at UNCSTD, since they are dealt with in other forums and are generally counterproductive in the corporate view. Some did say, though, that this topic too is open for discussion as long as the MNC view of what is practical is made clear.

Several groups noted the need to emphasize at UNCSTD the development of LDC technological capabilities, including general infrastructure buildup and especially the ability to choose technologies that really meet local needs as part of an overall development program.

All four Roundtables stressed the need for strong business representation on the U.S. Delegation to UNCSTD. Most participants felt that the U.S. Delegation should take the offensive and adopt a positive approach at the

Conference: it should emphasize the great actual and potential contribution of the market system and the U.S. private sector to science and technology for development. It should also help to educate LDCs on how the U.S. private enterprise system works -- for example, the legitimate need for a return on investment, and the independence of companies vis-à-vis the Government to make their own decisions on transferring technology. Many expressed a desire to avoid rhetoric and the discussion of technology transfer on a political level at the Conference, in favor of a more practical and/or more technical-level dialogue.

LDC infrastructure and the corporate role. As in the Questionnaire, participants were asked which areas in LDC science and technology infrastructures generally need the most improvement and in which of these MNCs can be of greatest help.

Participants at all four Roundtables noted the difficulty of generalizing on this point. Each LDC's infrastructure needs and priorities are different, and the same may be said of each company's ability to contribute.

Reinforcing the Questionnaire results, however, the common feeling in all four Roundtables was that manpower education and training is a key area of both LDC need and MNC ability to contribute. Basic education, management training, and technical training to create skilled labor were all cited as targets for improvement. It was noted, too, that MNCs already do a great deal in the training area in LDCs.

Several groups did mention, though, that the MNC is not necessarily the best device or source for building LDC infrastructure in all situations. Other mechanisms such as development banks or U.S. Government programs may be more effective in meeting particular LDC needs. This would probably hold true, for example, for general education as opposed to more technical training.

Government policies. The last topic in this workshop was how LDC and developed country governments can best encourage corporate action to meet LDC science and technology needs. (Additional suggestions for government action on a broader scale were covered in workshop 2.)

Many participants focused on what they saw as desirable changes in U.S. Government policy. These included establishment of clear and consistent technology transfer and export policies, changes in tax policy so as not to hinder overseas operations by U.S. companies, easing of antitrust regulations as they pertain to science and technology for development, and tax relief for corporate contributions overseas as well as domestically.

Many noted again that the most important government role is to eliminate disincentives to and ease the conditions on the flow of technology and create a favorable climate for investment.

Several groups noted the desirability of mutual government-business responsibility in the manpower area. They cited general education, including scholarships, as a predominant government preserve, while specific/technical training is an area for greatest MNC contribution.

### Proposals for Action

Individual company initiatives. Turning in the afternoon to concrete proposals for action in science and technology for development, Roundtable participants were asked what individual corporations can do -- both in the daily pursuit of business and through "corporate citizenship" programs -- to continue to meet LDC science and technology needs.

In response, many groups first noted that MNCs are already doing a great deal in this area as an automatic part of doing good business -- for example, the training of employees and others in the LDC where a company operates and activities to promote a favorable environment in the country in the long term. These existing contributions need to be more widely and effectively communicated. Many examples of present corporate programs were cited by participants, and extensive research in this area has already been done by IMDI in cooperation with the U.S. International Communication Agency in Washington and U.S. Embassies and American Chambers of Commerce worldwide. The results of this effort to document existing corporate programs will appear in an IMDI Top Management Report entitled, "Corporate Citizenship: Outstanding Examples Worldwide."

The major area for individual company action cited by all four Roundtables was the education and training of host nationals. Suggestions for corporate initiatives in this field include:

1. Supplying school and training materials for use in LDCs. Companies should tailor such materials to the particular country and student/worker level targeted and include educational toys to develop an early familiarity with technology.
2. Supplying MNC personnel as teachers/trainers in local programs.
3. Expanding existing MNC training programs to include non-employees. The training of host nationals in areas related to company operations will benefit all parties involved.
4. Providing apprenticeships within the company for host nationals, especially in operations within the LDC so as to fight "brain drain."
5. Providing international exchange programs to take LDC managers and other employees to work and train in the United States and other developed countries. (Participants differed on whether the emphasis should be on keeping host nationals in LDCs or simply getting them the best training available, including taking them to developed countries if necessary.)
6. Providing educational programs and materials on the private enterprise system. Tailor these to all student and adult levels, including teachers who will educate others.
7. Encouraging Junior Achievement-type programs in LDCs, where young people set up and run their own businesses.

8. Providing tours and demonstrations of company operations to students.
9. Providing scholarships, both for LDC employees to gain outside education and for host nationals generally.

In other areas, many participants suggested increasing incentives within companies for community involvement. For example, firms could encourage involvement by individual employees by providing time off with pay and could incorporate social responsibility criteria into company performance evaluations.

Many emphasized the need for companies to coordinate with LDC enterprises and institutions. They can do this by participating in industry meetings, working with local research institutes, and continuing local business representation in the upper management (e.g., Board of Directors) of MNC subsidiaries. U.S. firms can also put more home-country personnel in direct contact with host nationals to increase knowledge and understanding of LDC needs, goals, and capabilities and can encourage dialogue with LDC government and business officials so as to coordinate MNC activities with national development priorities and technology needs.

Joint corporate initiatives. A second question asked how companies can work not just individually but collectively to help address LDC science and technology needs.

The major recommendation here was to establish an expanded program patterned after the International Executive Service Corps (IESC) to provide corporate advisory personnel for specific projects in LDCs. Participants proposed that such a program include technical-level personnel (e.g., foremen) as well as executives and active-duty as well as retired personnel. Current corporate employees could be organized into a "borrowed executive" program where companies could lend personnel on a short-term rotating basis, perhaps with senior personnel initiating a particular project and returning on a part-time basis while junior personnel are loaned on a full-time basis to maintain the program. Also mentioned for inclusion in such an "expanded IESC" were experts in R&D and in management to develop skills in their respective fields.

Several participants noted questions of funding and administration that would have to be resolved before the establishment of such an IESC-type program. For example, the possibility of its linkage to government and/or to business organizations should be explored.

Another important proposal -- one which could be linked to the previous one -- was for an international management training program specifically. This would call for the establishment of a multi-company program to train LDC managers in firms in the United States and in other developed countries, and in company operations in LDCs themselves. The possibility of funding by development banks or other public-sector means was also mentioned here.

Many participants recommended that companies work through different types of existing business organizations to coordinate joint community service projects in particular LDCs and establish a continuing dialogue with local

officials and businessmen to improve corporations' understanding of LDC needs. Most frequently mentioned as a useful institution in this context were the American Chambers of Commerce (AmChams) in other countries; also cited were local LDC chambers, trade associations, and organizations such as IMDI and the Business Roundtable.

Other significant recommendations and observations in the area of joint corporate efforts included the following:

1. Explore how to involve small and medium-size companies in meeting LDC science and technology needs, since the experience of such enterprises may in many cases be more applicable to LDC situations than that of large MNCs. Possible approaches would be to establish a cooperative program to bring LDC trainees to the United States as apprentices in such companies or to set up consulting agencies to help match small businesses and their counterparts in LDCs.
2. Establish a technological information clearinghouse available to LDCs, to which companies can contribute information. This could perhaps be done with U.S. Government assistance along the lines of the National Technical Information Service.
3. Most initiatives that individual companies can take -- for example, provision of educational and training materials and facilities -- can be done on a larger and/or coordinated scale by combining the efforts and resources of several firms.
4. Companies should be aware of possible antitrust problems that may arise from U.S. policies if they try to establish joint corporate efforts to help LDCs.
5. Some participants were of the opinion that the biggest corporate contribution to science and technology for development comes from the regular pursuit of business and that therefore formal programs -- especially joint ones -- should be avoided unless they tie in rather directly with the "bottom line."

Government proposals. Moving from the private into the public sector, participants were asked what policy initiatives by developed and developing country governments would best promote science and technology for development.

A major set of proposals for U.S. Government action were put forth:

1. The most important recommendation was that the United States should better coordinate its international economic policies so as to promote consistently the transfer of technology and trade and investment abroad by U.S. companies. Participants differed, however, as to how far this recommendation should go -- i.e., whether a centralized agency or other new institutions should be established as a focal point for policy making.

2. Changes in U.S. tax policy are desirable to clarify policy and to create incentives and remove disincentives for overseas operations by American companies.
3. The State Department in the United States and American Embassies abroad should be better staffed with advisors familiar with the transfer of technology and with how U.S. companies operate. U.S. Embassies should do more to communicate with and support American companies operating in other nations, as other developed country governments do for their own corporations.
4. Mixed views were expressed on official aid, but many thought that it is useful to assist middle- and poorer-level LDCs who have little to attract MNCs on their own. One suggestion was for the U.S. Government to help match up U.S. companies with such countries and then fund the initial contract for the MNC to come in.
5. The State Department could assist in the exchange of information between MNCs and LDCs. It could advise MNCs on LDC investment attitudes, laws, and opportunities and advise LDCs on the impact of their foreign investment regulations and on opportunities for acquiring U.S. technology.
6. The U.S. Government could do more to encourage R&D, both by removing disincentives in the United States and by assisting R&D in developing countries.
7. The idea of a Foundation for International Technological Cooperation (FITC) met with some support among participants. Some said such a Foundation would be useful to finance private R&D on LDC problems and the sending of personnel overseas. While the FITC idea by name did not meet with much enthusiasm, many of the recommendations in this Report that involve government could in fact be placed under the jurisdiction of such an institution.

Several suggestions for action in the LDCs were also made:

1. General education is a major area for government action. Developing country governments, with U.S. help, should concentrate on the development of indigenous educational systems. In the meantime, devices such as U.S. Government scholarships for advanced study here are useful.
2. LDC and developed country governments should work to promote other LDC infrastructure improvements as well -- for instance, R&D centers and management institutes.
3. Improved LDC development planning is necessary to clarify and coordinate policies and to improve the choice of technologies. One way to assist this would be for U.S. Government-sponsored teams to participate in the planning process and help identify LDC needs, goals, and capabilities.
4. Developing countries need to eliminate disincentives on MNC operations, such as ownership fadeout requirements, royalty limits, and foreign

currency requirements. In turn, incentives for such company operations need to be created, for instance by means of tax incentives and the clarification and stabilization of policies.

5. Regional and other inter-LDC coordination might be useful, to let developing countries learn from each other's science and technology experience and perhaps to allocate production and consolidate markets among them.

Government-business joint efforts. To wrap up each Roundtable session, participants were asked what cooperative efforts between government and the private sector would facilitate more effective technology transfer.

A unanimous recommendation was for continued government-business cooperation in the United States geared toward UNCSTD. All participants advocated strong business representation on the U.S. Delegation, and some suggested an additional "blue chip" advisory panel alongside. We should make sure that all U.S. officials involved in UNCSTD know of business views and proposals on the transfer of technology -- and many to this end recommended wide circulation of the results of the State Department/IMDI program.

Seen as equally important was communication of the business viewpoint by these U.S. officials to the LDCs -- communication in a positive way that shows how to use the private enterprise system to promote science and technology for development. Continued U.S. government-business dialogues in preparation for UNCSTD -- such as the Roundtables -- were seen as useful, and they might be expanded to include greater LDC government and business representation.

Many also recommended the establishment of government-business dialogues above and beyond UNCSTD. For example, four-sided "brainstorm sessions" -- with government and business representatives from the United States and particular LDCs -- could be scheduled on a regular basis to identify technology transfer needs, goals, and capabilities, to discuss proposals for action, and to promote mutual understanding. Developing countries should be encouraged to form indigenous government-business councils for similar analysis of their economies and liaison with the outside, perhaps grouped by sector and patterned after the U.S. joint aerospace committee that assisted the space program. Greater coordination with the private sector could be established in U.S. international economic policy as well, both in the making of policy at home and in its implementation in the field -- the latter, for example, through increased coordination with U.S. businessmen by Embassy attachés, or an expanded role for U.S. trade missions.

Technical/vocational training programs in developing countries represent a major area for government-business cooperation. Multinational companies can provide teachers/trainers, materials, and apprenticeships or trainee openings in programs administered and/or funded by developed and/or developing country governments. This benefits both sides if done in fields where the MNC needs local employees or support and works best when done as much as possible in the LDC, including "training the trainers."

Many thought that a useful U.S. cooperative program would be a government-run clearinghouse for a two-way flow of technological information provided by MNCs and LDCs. This might include making existing U.S. commercial data banks available to LDC users, and exploring how U.S. companies can better tap existing government sources of economic and technological information (e.g., intelligence agencies, Embassies).

Other suggestions mentioned relating to government-business joint efforts included:

1. Establishing an education program on the private enterprise system, both in the United States and abroad, co-sponsored by the U.S. Government (e.g., the Agency for International Development) and American companies.
2. Construction of housing and other physical infrastructure in LDCs using materials provided by MNCs and local labor. (Similar programs exist in U.S. communities -- it might be useful to study other examples of domestic programs that could be applied internationally, including corporate community service efforts and training programs by educational institutions and the military.)
3. The U.S. Government could serve as an intermediary -- providing "match-making" services, funding, and/or an information clearinghouse -- to involve both small-to-medium-size U.S. businesses and poor-to-medium-level LDCs in international technology transfer projects.
4. A final note: joint government-business efforts should be "profitable" in the broad sense of the term. There must be benefit to participating companies at least in the long term, and a project should eventually be able to stand on its own as a private/independent operation without continued government subsidy.

## V. SUMMARY RECOMMENDATIONS

Reviewing the conclusions of the Questionnaire and the four Top Management Roundtables, a number of common themes stand out as items of top priority in the eyes of U.S. businessmen.

As a general observation, it is felt that present mechanisms for the transfer of technology -- based on the free enterprise, market system -- are basically sound and are likely to be much more effective than alternative mechanisms involving increased government intervention. A great many things can be done to improve the effectiveness of the present transfer process, but such improvements must start with a better understanding by all parties of the underlying principles that make the transfer of technology work. Foremost among these is the fact that most technology is private property and all of it requires an investment of resources upon which its developers have a right to expect a return.

Any transfer of technology is a process involving two sides (at least): the suppliers and the recipients. Both sides must contribute to the effectiveness of the process, and both must perceive some potential benefit from the transfer -- at least in the long term -- to be willing to make that contribution. There is a feeling among members of the U.S. business community -- as there is elsewhere -- that more attention needs to be paid to building up the practical ability of developing countries to use the technology that is transferred to them, rather than placing additional restrictions on the supplier side that limit the outcome of a potential transferrer's cost-benefit calculations.

The proposals for action that emerge from this program focus on the need to improve LDC capabilities for using science and technology. There is a major role that U.S. companies, as enterprises with great experience already in using science and technology, can play in this area. Manpower skills, both managerial and technical, have been identified as a key ingredient in the recipient side of effective technology transfer, and they are an area with which U.S. international corporations are well acquainted.

Perhaps the biggest contribution that American companies can make to science and technology for development -- and indeed they have been making it for quite some time -- is to provide opportunities for the training of LDC nationals. They can continue and expand this contribution in many ways: by supplying materials and instructors to projects organized by LDC groups, by creating openings for LDC nationals in company training programs, and by participating in cooperative corporate programs for the two-way exchange of trainees and advisory personnel. This training process is one which benefits all parties, improving both LDC infrastructure and the effectiveness of company operations in developing countries.

The most effective government role in promoting the transfer of technology is the creation of a favorable environment -- the establishment of stable policies that encourage the process on the part of private enterprise by means of incentives and avoidance of disincentives. This holds for both supplier and recipient governments. Public-private cooperation on all

sides -- linking LDC and developed country government and business individually and collectively -- is essential to the development of LDC capabilities in science and technology, including both the ability to choose technology and the buildup of the infrastructure to receive it.

For the U.S. Government, greater coordination of policies affecting U.S. company operations abroad is desirable so as to be consistently supportive of science and technology for development. Continued coordination with the U.S. private sector, both in preparation for UNCSTD and otherwise, is called for; constructive dialogue and the exchange of information among all parties are key action points.

## VI. CONCLUSION

The Top Management Questionnaire and the series of Top Management Roundtables have yielded both a clearer picture of U.S. corporate viewpoints on the transfer of technology and a large number of fresh initiatives that can be taken by MNCs themselves and in cooperation with governments. This is both new and encouraging.

Much of the talk and study on science, technology, and development prior to the State Department/IMDI program focused primarily on the negative -- on how to regulate MNCs and control technology -- or on new government institutions. The Questionnaire and Roundtables, however, concentrated on the positive -- the enormous potential of the private sector to contribute to progress in this area, provided a friendly, competitive, incentive-oriented climate exists.

One of the most exciting areas for future action pinpointed by the project is that of manpower training in the LDCs. Both a great need on the part of developing countries and a great corporate potential to meet that need exist in this all-important field. We believe that concrete corporate commitments could be forthcoming in the training area that would have a major impact on science and technology for development and that could be presented as a major initiative by the private sector in conjunction with the U.N. Conference.

To achieve such a set of corporate commitments requires early and concerted action by concerned parties in the U.S. Government and business communities, should it be decided to explore further the potential of such proposals as:

1. The provision of internships or apprenticeships in U.S. companies for executives from LDC industry and government -- perhaps a professional-level version of the International Association of Students in Economics and Management (AIESEC).
2. The transfer of retired U.S. corporate specialists at the technical and foreman level to advise projects in developing countries -- an expanded International Executive Service Corps.
3. The temporary placement of active-duty U.S. corporate managers in LDC advisory assignments.
4. The extension of U.S. corporate management and technical training programs to non-employees within LDC host communities.

While concentration on this set of proposals should not be taken as a downplaying of the other creative and practical suggestions that arose out of the IMDI project, it appears that further investigation of the mechanics and viability of a coordinated international training program

holds perhaps the most promise for an early, significant, and pragmatic contribution by the U.S. corporate community to science and technology for development.

Whatever the form, the potential contribution of the U.S. private sector is so valuable to the practical transfer of technology and the promotion of goodwill internationally that a dollar sign cannot be placed on it. A challenge exists to tap this potential that should not be ignored.



# International Management and Development Institute



## Appendix 1: PARTICIPANTS IN PROGRAM

### Steering Committee

Hon. Willis C. Armstrong, Consultant, United States Council of the International Chamber of Commerce  
Russell Baker, Senior Partner, Baker & McKenzie  
Hon. C. Fred Bergsten, Assistant Secretary of the Treasury for International Affairs  
B.C. Christensen, Vice President and General Manager, IBM World Trade Corporation  
Justin Dart, Chairman and Chief Executive Officer, Dart Industries Inc.  
Hon. William D. Eberle, Vice Chairman, United States Council of the International Chamber of Commerce  
James P. Grant, President, Overseas Development Council  
Walter E. Hoadley, Executive Vice President and Chief Economist, Bank of America  
Antonie T. Knoppers, Chairman, The Salzburg Seminar  
John S. Ludington, President and Chief Executive Officer, Dow Corning Corporation  
William F. May, Chairman and Chief Executive Officer, American Can Company  
Thomas H. Miner, President, Mid-America Committee  
Donald J. Morfee, Vice President of Operations, Pullman Incorporated  
Robert B. Ormsby, President, Lockheed-Georgia Company  
Wylie S. Robson, Executive Vice President and General Manager, Eastman Kodak Company  
C.H. Smith, Jr., Chairman of the Board, SIFCO Industries, Inc.  
Hon. Alexander B. Trowbridge, Vice Chairman, Allied Chemical Corporation  
Ralph A. Weller, Chairman and Chief Executive Officer, Otis Elevator Company  
Boris Yavitz, Dean, Graduate School of Business, Columbia University

### Task Force

Peter M. Daniels, Associate Director of Program, United States Council of the International Chamber of Commerce  
Donald D. Evans, Deputy Director, Office of International Programs, Denver Research Institute  
Theodore Geiger, Director of International Studies, National Planning Association  
Donald L. Guertin, Senior Advisor on International Issues, Exxon Corporation  
Harvey W. Wallender III, Managing Director, Council of the Americas

### Cooperating Organizations

The four Top Management Roundtables were co-sponsored by the U.S. Department of State and IMDI, in cooperation nationally with the U.S. Department of Commerce and the United States Council of the International Chamber of Commerce. The regional cooperating organizations were:

New York: Institute of International Education  
Columbia University Graduate School of Business  
Chicago: Mid-America Committee  
Los Angeles: UCLA Graduate School of Management  
SRI International  
Atlanta: Southern Center for International Studies



SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Executive Summary

Editor's note: The following is a summary of a Situation Briefing on "Science, Technology, and Development" prepared by the International Management and Development Institute and co-sponsored by the U.S. Department of State. Members of the business community are encouraged to read the full document, available from IMDI, as a basis for discussion at four regional Top Management Roundtables in the fall of 1978, designed to assist U.S. preparations for the 1979 United Nations Conference on Science and Technology for Development.

This paper should not be considered a statement of the views or policies of IMDI or of the State Department. The inclusion of a particular issue or position in this work does not constitute an endorsement of that item's merit or accuracy.

IMPORTANCE OF THE ISSUE

The transfer of technology is one of the most fundamental and controversial issues on the current agenda for discussion between developed and developing countries. It is of critical importance to:

- . The less developed countries (LDCs), because of technology's pivotal role in the whole process of development.
- . Multinational corporations (MNCs), as major holders of desirable technological know-how in the West, and with an interest of their own in expanding stable markets in the LDCs.
- . The United States itself, since cooperation in technology is fundamental to the economic strength of this and of all nations, and affects the international political climate for U.S. foreign policy and the prospects for world peace.

The resolution of current disputes in this area and the institution of more effective transfer mechanisms would be of mutual benefit to all parties:

- . The LDCs could make better use of MNC experience to improve their own technological capabilities, to meet basic needs and develop competitive exports without "reinventing the wheel."
- . The MNCs could gain additional income, resources, access to markets, and technical feedback, while promoting the health of a competitive private sector in the LDCs and internationally.

In light of these benefits, and of the potentially disruptive effects of a breakdown in technological cooperation in today's dynamic and interdependent world, it is in the interest of all concerned parties to collaborate constructively in regard to the transfer of technology. While it would be understandable for MNCs to adopt a "status quo" stance on this issue, as some claim is the case, the point is also made that it is more in the corporate interest to seek out creative approaches to meeting LDC needs, just as it is in the developing countries' interest to cooperate with and encourage the MNCs.

### BACKGROUND AND CONTEXT

A "technology" is the sum total -- not necessarily neatly packaged -- of material goods, human skills, and abstract knowledge necessary to accomplish a particular task. It may be "transferred" from one individual or group to another, although the actors and mechanisms involved can vary widely with the circumstances.

The context for the current debate over international flows of technology is provided by the postwar boom of assistance programs to newly independent LDCs, and the frustrated aspirations generated in this period that gave rise to the "Third World" movement of the 1970's. Technology as a component of development received increasing attention as the 1960's drew to a close:

- . The United Nations Conference on Trade and Development (UNCTAD) arose as a major forum for discussion of technology for development continuing to the present day.
- . Other dialogues have taken place in such settings as the U.N. Industrial Development Organization (UNIDO), the Sixth and Seventh Special Sessions of the U.N. General Assembly, and a variety of non-U.N. multilateral forums, accompanied by unilateral changes in national and regional transfer of technology legislation.
- . The U.N. Conference on Science and Technology for Development (UNCSTD), to be held in Vienna in August 1979, will cover the role of science and technology in development and how existing international institutions and new cooperative arrangements could improve that role. Descriptive national papers are being drawn up by U.N. members in preparation for UNCSTD; in the U.S., the Office of the Coordinator for UNCSTD is soliciting input from the American public to assist in developing the U.S. contribution to the Conference.

### INTERNATIONAL ISSUES

Although one should keep in mind the diversity of viewpoints and situations existing among different LDCs and MNCs, the substance of the transfer of technology dispute -- including many issues likely to come up at UNCSTD -- may be summarized as follows:

- . Basic philosophy. The position of the developing countries rests on the principle that technology is part of the "common heritage of mankind"; therefore all countries have a right of free access to it. (Many of today's LDCs have toned down this argument.) In the developed world, however, technology is seen as valuable and hard-earned intellectual property; therefore the same rights of ownership accrue to those who develop it as for any other form of property.
- . The cost of technology. LDCs feel that the cost of transferred technology is exorbitant, in that they are being asked to pay for, in addition to actual transfer costs, the "sunk" costs of initial development that are in fact recovered by companies in their own product sales. MNCs, on the other hand, can argue that LDCs are getting a bargain through multinational firms on the most advanced and otherwise unavailable technologies. Market costs, they say, reflect the true value of technology in terms of the resources, effort, and risks involved in R&D.
- . Appropriateness of technology. Developing countries complain that most transferred technology is inappropriate to LDC needs. In particular, they say, it is often too capital-intensive instead of labor-intensive. MNCs would argue, however, that companies are simply responding to LDC consumer demand. When this is coherent, MNCs can in fact draw on their global experience to scan for technologies already available and LDC-adapted, and apply them to a particular situation. ("Appropriate" technology is often more a developed world argument.)

- Patent and licensing systems. LDCs feel that current patent and licensing mechanisms for transferred technology are too restrictive, and permit patent-holders to "bottle up" technologies and preempt their use by others. MNCs, however, see such restrictions, contained in long-standing international conventions, as critical to the protection of industrial property rights and product competitiveness.
- Unfair practices. Developing countries claim that MNCs and other technology suppliers are guilty of "unfair and restrictive practices" in their transfer dealings with LDCs; for example, the tying of technology supplies to other purchases, or dictating personnel and management decisions. (Some softening of charges has occurred over time.) While companies acknowledge that some abuses have taken place, most realize their advantage in dealing fairly and openly with their hosts, in accordance with existing home- and host-country legislation, and will operate in terms of their long-term interest in staying in attractive LDC markets.
- Regulation by national governments. LDCs assert that the strength and independence of MNCs necessitate increased national government regulation of the transfer process. In the eyes of MNCs, however, governments already hold ultimate control over all corporate activities. Additional regulation would be counterproductive, they argue, creating such a hostile environment that companies could find it difficult to operate in such LDCs at all, thus decreasing the flow of technology. (Most MNCs now accept increased LDC technology policy making.)
- International regulation. Developing countries fear that the transnational nature of MNCs means that domestic legislation alone is not sufficient to control them, necessitating international regulatory mechanisms as well. MNCs would assert, however, that in order to maintain their international operations, they are already constrained to be more responsible in conducting their business around the world. National controls are considered adequate to protect local interests, although some global standardization of policies might be useful.
- Development of indigenous technology. LDCs complain that their indigenous technological capabilities are not being sufficiently developed through current transfer of technology mechanisms. MNCs would argue, on the contrary, that their operations have in many cases provided a shortcut to building the host-country technological capabilities crucial to technology transfer. Some companies would add, however, that undue concentration on indigenous R&D can be costly and duplicative, particularly government attempts to monopolize R&D in their own labs.

#### U.S. POLICY CHOICES

The transfer of technology controversy has also generated considerable domestic debate within the United States as to what U.S. international technology policy should be, in light of the following issues:

- Comparative advantage. The United States has in the postwar period been the world leader in technological development. There is a fear that the export of too much technology will result in the deterioration of this favorable U.S. position vis-à-vis other countries. Many who believe this is the case say that the U.S. should adopt a policy of self-sufficiency and hold back on dissemination of its technology internationally, to avoid losing our comparative advantage in this crucial input. Others say we should continue our dissemination of U.S. technology to other countries, since this will stimulate innovation and build constructive international relationships in a dynamic, interdependent world system.
- Employment. Technology transfer has an effect on the domestic economy of the U.S., including the employment situation. Studies differ, however, as to whether the net result is a gain or a loss in American jobs. Some say the U.S. should continue to

promote the transfer of technology, since this results in expanded markets abroad and thus increased jobs in U.S. exporting sectors. Others argue we should tightly control the technology we transfer, thereby reducing competition from foreign imports and thus protecting U.S. jobs.

Quality of life. The U.S. and other developed countries have achieved a high standard of living as a result of technology, but it is uncertain whether this technological lifestyle can be continued or extended to the rest of a densely populated world without disastrous effects on the global ecosystem. In the eyes of some, this situation demands that the U.S. reduce its high-technology consumption and share its wealth with the LDCs, so that all can achieve a minimum standard of living while staying within the limits that the global system can support. Others would argue that we should concentrate on strengthening our own technological base as the best way to help both ourselves and the LDCs; too much "division of the wealth" would hurt all in the long run, without significant improvement in the developing world.

#### PROPOSALS FOR IMPROVEMENT

Numerous proposals have been generated that address themselves to one or more of the international and domestic issues discussed above. These include:

- . Informational and consulting services to help LDCs identify their technology needs and opportunities for acquiring the items that meet them.
- . Direct dialogues between representatives of individual MNCs and LDC governments, to resolve outstanding disagreements and discuss methods of coordination.
- . Cooperation between MNCs and LDC companies, such as joint ventures, improved contract negotiating and formulating mechanisms, and MNC-sponsored funds and services to assist the LDC private sector.
- . Official assistance programs by developed country governments, including grants, loans, or other assistance to help LDCs pay for technology, and research and training in government-sponsored programs.
- . Developed country government incentives -- such as grants, tax relief, and government-business coordination -- to promote LDC-geared private-sector R&D, training, and transfers of technology.
- . LDC government action, including incentives for MNC and other supplier operations, encouragement of indigenous technological development, and legislation clarifying technology policies.
- . Transfer of technology centers, sponsored nationally, regionally, or by international organizations, to coordinate technology transfer policies and provide services to LDCs.
- . Reform of the international patent system, including changes in the role of the World Intellectual Property Organization (WIPO).
- . An international Code of Conduct on transfer of technology, setting either mandatory or suggested guidelines for transfer arrangements.

It should be emphasized that additional input and new responses are needed to supplement the possibilities sketched here and to keep the negotiating process going. Positive attitudes and constructive action on the transfer of technology by all concerned parties should be given the highest priority, making use of the opportunity presented by UNCSTD.



# International Management and Development Institute



Top Management Questionnaire on

## SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Co-sponsored by the U.S. Department of State  
and the International Management and Development Institute

TO: Senior Officers of U.S. International Companies

SUBJECT: Survey/Questionnaire on "Science, Technology, and Development" -- in preparation for the 1979 U.N. Conference on Science and Technology for Development

The purpose of this questionnaire -- which is being addressed to Chief Executive Officers of major U.S. international companies and other selected leaders in business and finance -- is to provide guidance to the U.S. Department of State as to the views of American business on the transfer of technology to developing countries, in conjunction with U.S. preparations for the United Nations Conference on Science and Technology for Development (UNCSTD), to be held in Vienna in 1979.

Your response represents your opportunity to have your voice heard and your views considered -- as informal, private-sector "counsellors" to the State Department on an important subject affecting your business. The purpose of this Questionnaire is to build upon -- not repeat -- the findings of earlier research efforts on the subject of "technology transfer," with particular attention to new initiatives and areas for negotiation.

Will you please place a check in the box that best corresponds to your judgment regarding each of the items below. Respondents are also encouraged to write in their own suggestions and comments in the spaces provided, where appropriate.

A. THE ISSUE: Effectiveness of present mechanisms for the transfer of technology

Many argue that the present system for transmitting technology to the less developed countries (LDCs) is inadequate to meet development needs, and they therefore advocate sweeping changes in the characteristics of that system. By contrast, others indicate that they are basically satisfied with present mechanisms for technology transfer, which they believe work well both to safeguard supplier interests and to promote successful LDC development. What is your opinion?

Please check one:

- 1) The present system for transmitting technology to the LDCs works well, as indicated by the successes of the more advanced LDCs, and should not be changed..... 17
- 2) The present system works well in theory and could function very effectively in practice if fully understood and implemented..... 33
- 3) The present system works fairly well, but there is significant room for improvement through negotiations between LDC and developed country representatives..... 37
- 4) The present system has never really worked well, as indicated by the continued poverty of most LDCs, and requires major reform..... 5
- 5) Other \_\_\_\_\_..... 11

Comments:

(103 responses total)

B. THE INTERNATIONAL AGENDA: Areas for possible negotiation

At next year's UNCSTD meetings, it can be expected that "Third World" nations will vigorously present their own viewpoints on a number of issues which relate to the activities of multinational corporations (MNCs) in the transfer of technology. At least some of the LDCs may be expected to urge the U.S. Government to change its policies in some of these areas.

To what degree do you believe there is legitimacy to the concerns raised by LDCs on these technology transfer issues? Is there room for flexibility in negotiating on these issues, or should the U.S. Government hold firm in its position?

Please respond to each of the two sets of columns below, indicating first whether you believe each issue is or is not a valid concern, and second if there is or is not room for negotiation on the subject.

	Valid Concern		Uncertain	Room For Negotiation		Uncertain
	Yes	No		Yes	No	
1) Concern over the <u>price</u> at which technology is transferred..	44	54	5	61	33	9
2) Concern over the <u>appropriateness</u> of transferred technologies to LDC development needs.....	69	28	6	77	18	8
3) Concern over current <u>patent and licensing</u> procedures.....	48	49	6	57	35	11
4) Allegations of " <u>unfair practices</u> " on the part of MNCs in their technology dealings with LDCs.....	36	61	6	60	29	14
5) Desire for increased <u>regulation</u> of the transfer of technology by national governments.....	34	62	7	41	50	12
6) Desire for <u>international regulation</u> of the transfer of technology (e.g., an international Code of Conduct).....	31	67	5	38	54	11
7) The need to promote the development of <u>indigenous LDC technological capabilities</u> .....	85	14	4	89	3	11
8) Other _____	4	0	0	5	0	0

Comments:

C. DOMESTIC ISSUES: Priorities for U.S. decision-makers

The transfer of technology controversy has also generated considerable domestic debate within the United States as to what our international technology policies should be. Concerns are being voiced by segments of U.S. society that, for example, "technology transfer" weakens (or, conversely, strengthens) America's competitiveness in the world, or that it hurts (or helps) U.S. employment.

In the questions below, please indicate how you feel about these domestic issues, so that your conclusions may be kept in mind by U.S. Government representatives at the U.N. Conference.

- 1) The argument is advanced that the transfer of technology by the United States tends to detract from U.S. leadership in science and technology and hurt American competitiveness in the world market.

Please check one:

- a) This is a legitimate complaint..... 3
- b) This is not a legitimate complaint..... 45
- c) There is some truth to the complaint and room for discussion..... 50
- d) Other \_\_\_\_\_

... 5

2) It is argued that the net result of U.S. technology transfer overseas is to put Americans out of jobs.

Please check one:

- a) This is an accurate conclusion..... 1
- b) The opposite is true -- the net result is increased U.S. employment..... 31
- c) Neither side is wholly true -- technology transfer produces a "mixed bag" of employment results..... 67
- d) Other \_\_\_\_\_... 4

3) There is strong disagreement over what it takes to aid the LDCs through the transfer of technology. Some say that the only answer is for the U.S. to sacrifice its quality of life (e.g., reduce its level of consumption) in order that others can "share in the good life." An opposite view is that both sides must "win" through technology transfer, with America helping others to gain from (not deplete) our continued strength.

Please check one:

- a) The U.S. can and should make stronger sacrifices to help the LDCs..... 4
- b) The U.S. can and should help the LDCs wherever possible, but not when it results in sacrifice to ourselves..... 12
- c) U.S. sacrifices are not necessary to help the LDCs -- in fact continued U.S. prosperity and progress is best for all parties..... 82
- d) Other \_\_\_\_\_... 5

4) Other issues \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_... 1

Comments:

D. BASIC PREREQUISITE: LDC technological capabilities

Analysts from both LDCs and developed countries agree that the level of development of an LDC's science and technology infrastructure is an important factor in determining the success and effectiveness of technology transfer, given a foundation of sound economic policies. Unfortunately, most also agree that these indigenous technological capabilities are currently inadequate in the majority of developing countries to support effective absorption of imported technologies.

1) What sectors of the LDC science and technology infrastructure do you feel need the most improvement, if the transfer of technology process is to be made more effective?

Please check all that apply:

- a) Basic science and "R&D"..... 29
- b) Manufacturing capacity..... 41
- c) Communications and transportation..... 66
- d) Skilled labor..... 79
- e) Engineering expertise..... 66
- f) Management know-how..... 92
- g) Marketing and distribution..... 50
- h) Other \_\_\_\_\_... 19

2) In which of these sectors do you feel U.S. companies have the greatest opportunity to contribute to the improvement of LDC technological capabilities, resulting in better technology transfer for all?

Please check all that apply:

a) Basic science and "R&D".....	36
b) Manufacturing capacity.....	62
c) Communications and transportation.....	58
d) Skilled labor.....	26
e) Engineering expertise.....	83
f) Management know-how.....	92
g) Marketing and distribution.....	66
h) Other ..	7

Comments:

E. A POSSIBLE APPROACH: Regulation of technology flows

Many LDCs assert that the most effective way for them to improve the transfer of technology process, and to make it more responsive to their development needs, is to increase the regulation of international technology flows by national governments. Many MNC representatives strongly oppose this tendency, however, arguing that government restrictions would create disincentives to the transfer process rather than promoting it.

The LDC belief that the strength and independence of MNCs gives companies an unfair advantage needs to be addressed. MNCs do in fact accept many forms of regulation imposed by their home governments to guarantee fair and equitable treatment of customers and suppliers. This raises the question of whether such safeguards could not be carried over into the LDC context.

Which of the following regulatory mechanisms do you feel might be constructive approaches to improving the transfer of technology process? Which counterproductive?

Please check each item as constructive or counterproductive.

	<u>Constructive</u>	<u>Counter-productive</u>	<u>Uncertain</u>
a) Increased <u>national legislation</u> by <u>host</u> countries (e.g., LDCs).....	5	94	4
b) Increased <u>national legislation</u> by <u>home</u> countries (e.g., the U.S.).....	5	95	3
c) Model clauses for <u>individual contract arrangements</u> .....	73	22	8
d) A <u>legally binding international Code of Conduct</u> .....	9	88	6
e) An <u>international Code of Conduct</u> consisting of <u>non-binding guidelines</u> .....	77	23	3
f) Other .....	4	0	0

Comments:

F. THE FUTURE: Proposals for action

A number of proposals for action can be expected to arise at next year's U.N. Conference on Science and Technology for Development, particularly coming from "Third World" representatives. The sponsors of these measures claim that they will improve the transfer of technology process to the LDCs. In contrast, many spokesmen from the industrialized nations say that a number of these proposals would be counterproductive, and some are now setting forth their own ideas for innovations that would advance the common interests of all in more effective technology transfer.

On the basis of your corporate experience, please rate the probable usefulness -- or lack of usefulness -- of each of the following proposals for improving the transfer of technology process to the LDCs.

(Very useful = 2, useful = 1, not useful = -1, counterproductive = -2)

Ranking		Very Useful	Useful	Not Useful	Counter-productive	Uncertain
3	1) Increased <u>joint ventures</u> between MNC suppliers and LDC recipient firms.....	33	66	0	0	4
6	2) Increased <u>direct dialogues</u> between MNCs and LDC governments to resolve outstanding disagreements.....	25	61	12	4	1
13	3) A <u>private enterprise development fund</u> to channel MNC resources into LDC private sector technological growth (e.g., to finance training and R&D).....	5	32	46	14	6
8	4) An MNC-sponsored <u>informational clearinghouse</u> to help LDCs pinpoint opportunities for acquiring technology.....	7	68	22	4	2
2	5) Objective <u>management consulting</u> to help LDCs identify their technology needs in terms of realistic development goals.....	44	54	1	3	1
7	6) Improved methods for <u>negotiating and formulating</u> transfer of technology contracts.....	14	61	25	1	2
1	7) Increased <u>incentives by LDC governments</u> to make their countries more attractive to MNC operations.....	52	42	4	3	2
17	8) Increased <u>LDC government legislation</u> regulating the transfer of technology.....	1	2	20	77	3
5	9) Encouragement by LDC governments of <u>indigenous technological development</u> (e.g., support of local R&D).....	28	59	11	2	3
4	10) <u>Increased incentives by developed country governments</u> for private activities related to LDC technology needs (e.g., tax relief, easing of export restrictions).....	33	53	14	0	3
10	11) Increased <u>official assistance programs</u> by developed country governments.....	6	40	44	8	5
11	12) <u>National transfer of technology centers</u> in LDCs, to clarify, coordinate, and implement technology policy (e.g., to match up technology needs and sources).....	4	42	42	10	5
12	13) <u>Regional and international centers</u> to provide transfer of technology advice and services to LDCs.....	4	35	49	10	5
14	14) Reform of the international system of <u>patents, trademarks, and copyrights</u> .....	6	34	25	32	6
15	15) A broader role for the <u>World Intellectual Property Organization</u> as a custodian of property rights.....	2	17	34	35	15
16	16) A <u>legally binding international Code of Conduct</u> on transfer of technology.....	4	6	20	72	1
9	17) An international Code of Conduct consisting of <u>non-binding guidelines</u> .....	4	63	24	11	1
	18) Other _____					
	.....	6	1	0	0	0

(no. 10 and below have negative rating)

Comments:

G. CONCLUSION: Major recommendations

By way of summary, what two, three, or four key points would you most like U.S. Government officials to keep in mind in their discussions with foreign government representatives at the U.N. Conference? These recommendations can range from points on how to safeguard your technology interests to positive proposals that would make it possible for you to increase your "technology flow" to the expanding markets in the developing world.

- 1) (see text of Report for evaluation of these responses)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 3) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 4) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Firm \_\_\_\_\_

Since the compiled results of this questionnaire will be used in November during four regional Top Management Roundtables on "Science, Technology, and Development," would you please return it at your earliest convenience -- by October 6, 1978, if possible -- to:

Ms. Danelle K. Simonelli  
Program Director  
International Management and  
Development Institute  
2600 Virginia Avenue, N.W. - Suite 905  
Washington, D.C. 20037



Appendix 4

Top Management Questionnaire on  
SCIENCE, TECHNOLOGY, AND DEVELOPMENT

List of Respondents

Total responses: 103

Breakdown by type of firm:

Manufacturing:

Machinery & metal products	40
Food, textile, wood & paper products	20
Chemical, rubber, stone & glass products	20
Extractive industries	9
Financial institutions	4
Transportation, communication, utilities, construction	4
Retail establishments	3
Miscellaneous	3

(Categories according to Standard Industrial Classification)

Breakdown by title of person responding:

Chief Executive Officer-level (includes President, Chairman, Chief Executive)	26
Vice President-level (includes all types of Vice President, Vice or Deputy Chairman)	49
Other (includes Director, Manager, Counsel, etc.)	28

Firms responding:

1. Addressograph Multigraph Corporation
2. Aluminum Company of America
3. American Can Company
4. American Cyanamid Company
5. Armco Inc.
6. ASARCO Incorporated
7. A-T-O Inc.
8. The Bankers Life Company
9. Bechtel Incorporated
10. Bemis Company, Inc.
11. Borg-Warner Corp.
12. Cabot Corporation
13. Campbell Soup Company
14. The William Carter Company
15. Celanese Corporation
16. CF Industries, Inc.
17. Champion International Corporation
18. The Chubb Corp..
19. Cities Service Company
20. Colgate-Palmolive Company
21. Combustion Engineering, Inc.
22. COMSAT General Corporation
23. ConAgra, Inc.
24. Corning Glass Works
25. Cyclops Corporation
26. Dentsply International Inc.
27. A.B. Dick Company
28. Dow Corning Corporation
29. Dresser Industries, Inc. (2 respondents)
31. Eastman Kodak Company
32. Exxon Corporation
33. Fairmont Foods Company
34. Freeport Indonesia, Incorporated
35. General Dynamics
36. General Mills, Inc.
37. General Motors Corporation
38. General Tire International Company
39. Gibraltar Savings and Loan Association
40. The B.F. Goodrich Company
41. Goodyear International Corporation
42. The Goodyear Tire & Rubber Co.
43. Green Giant Company
44. Gulf Oil Corporation
45. The Hanna Mining Company
46. Hershey Foods
47. Huyck Corporation
48. Ingersoll-Rand Company
49. IBM Corporation
50. IBM World Trade Corporation
51. International Harvester Company
52. International Paper Company

53. Itek Corporation
54. Johns-Manville International Corporation
55. Kimberly-Clark Corporation
56. Koppers Company, Inc.
57. The Lane Co., Inc.
58. Lever Brothers Company
59. Litton Industries
60. Lockheed Corporation
61. Lockheed-Georgia Company
62. The Manitowoc Company
63. C.H. Masland & Sons
64. McGraw-Hill, Inc.
65. Merck & Co., Inc.
66. Metropolitan Life Insurance Co.
67. 3M Company
68. Mobil Corporation
69. Nalco Chemical Company
70. National Distillers & Chemical Corp.
71. Newmont Mining Corporation
72. Omark Industries, Inc.
73. Otis Elevator Company
74. Owens/Corning Fiberglas
75. Peabody International Corporation
76. Perkin-Elmer Corp.
77. Phillips Petroleum Company
78. The Quaker Oats Company
79. Rexnord Inc.
80. Robertshaw Controls Company
81. Rockwell International
82. RTE Corporation
83. The Salzburg Seminar
84. Sanders Associates, Inc.
85. Sears, Roebuck and Co.
86. SIFCO Industries, Inc.
87. The Singer Company
88. Soltex Polymer Corporation
89. Southern Railway Company
90. SRI International
91. Standard Oil Company (Indiana)
92. Stauffer Chemical Company
93. J.P. Stevens & Co., Inc.
94. Sundstrand Corporation
95. Supermarket Systems, Inc.
96. Texas Eastern Transmission Corporation
97. Union Carbide Corporation
98. United States Council of the International Chamber of Commerce
99. United States Steel Corporation
100. Warnaco International Inc.
101. The Warner & Swasey Company
102. The Wickes Corporation
103. Zurn Industries, Inc.

# International Management and Development Institute

Watergate Office Building—Suite 905 • 2600 Virginia Avenue, NW  
Washington, D.C. 20037 • Tel. (202) 337-1022 • Telex: IMDI 248698

## Appendix 5: ROUNDTABLE ANNOUNCEMENT

September 25, 1978

**Directors**  
Hon. Dean Rusk  
Honorary Chairman  
Gene E. Bradley  
President  
John S. R. Schoentfeld  
Executive Vice President  
Hon. Theodore C. Achilles  
Vice Chmn. Atlantic Council  
Professor Edward C. Bursk  
Hon. Editor, Harvard Bus. Review  
B. C. Christensen  
V.P., IBM World Trade E.M.E.A. Corp.  
Dr. Otto J. Dax  
Vice Chmn. Siemens Corp.  
Michael O. Edwards  
Chmn. British Leyland  
Henry R. Geyelin  
Pres. Council of Americas  
Walter E. Hoadley  
Exec. V.P., Bank of America  
Tom Killefer  
Pres. U.S. Trust Co. of New York  
George J. Kneeland  
Chmn. St. Regis Paper  
Dr. Antonio T. Knoppers  
Former Vice Chmn. Merck & Co.  
Dr. Alexander Lewis Jr.  
Former Pres. Gulf Oil Foundation  
Hon. Paul W. McCracken  
Univ. of Michigan  
Hon. Lawrence C. McQuade  
Vice Pres. W. R. Grace & Co.  
H. E. Egidio Ortona  
Chmn. Honeywell Info. Systems Italia  
Hon. Frank Pace Jr.  
Pres. IESB  
Wyle S. Robson  
Exec. V.P., Eastman Kodak  
Reinaldo Scarbetta  
MDI Director, Latin America  
Mary Ann Bradley  
Honorary Director

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Mgr. Int'l Div. CoC of US  
John G. Crean  
Pres. Robert Crean & Co., Ltd.  
Philippe J. Dennis  
Reg. Dir. Conf. Board S. Europe  
Hon. William D. Eberle  
Vice Chmn. U.S. Council Int'l CoC  
Lawrence A. Fox  
Vice Pres. NAM  
Dr. Arthur Futer  
Pres. & CEO, Nestle S.A.  
Gen. Alexander M. Haig Jr.  
Sup. Allied Commander Eur. SHAPE  
Hon. Bryce N. Harlow  
Hon. Martin J. Hillenbrand  
Dir. Gen. Atlantic Inst. Paris  
Claire Giannini Hoffman  
Bertrand Hommey  
Patronat Francais, Paris  
Shigeo Horie  
Sr. Advisor, Bank of Tokyo, Ltd.  
Fisher Howe  
Resources for the Future  
Dr. Herman Kahn  
Dir. Hudson Institute  
Ivan Lansberg Henriquez  
Pres. SEGUROSCA, Caracas  
Dr. J. Sterling Livingston  
Pres. Sterling Institute  
Carlos Llano Cifuentes  
IPADE, Mexico City  
Dr. Rodrigo Lorente Martinez  
Pres. CICYP, Bogota  
Hon. Winston Lord  
Pres. Council on Foreign Relations  
Jonkheer John H. Loudon  
Thomas D. Lumpkin  
Pres. Gulf-Latin America  
Hon. George C. McGhee  
Tatsuzo Mizukami  
Pres. IMAJ, Tokyo  
Dr. Clifford C. Nelson  
Pres. American Assembly  
Hon. Frederick E. Noiting, Jr.  
Dr. Aurelio Peccer  
Chmn., Italconsult Co., Rome  
John P. Phelps, Jr.  
Dir., Fund for For. Inv., Caracas  
Ch. Scrivener  
Secy of St. Consumer Affs., Paris  
Ralph E. Smiley  
Chmn., Booz, Allen & Hamilton Int'l  
Albert T. Sommers  
Sr. V.P. & Chief Econ., Conf. Board  
Washington SyCip  
Manila, Philippines  
Hon. Alexander B. Trowbridge  
Vice Chmn., Allied Chemical Corp.  
Hon. John W. Tuthill  
Pres., The Salzburg Seminar  
Dr. Jose J. Urdaneta R.  
Pres., VECSA, Caracas  
Carl-Henrik Winquist  
Secy Gen., Int'l CoC, Paris  
Dr. Boris Yavitz  
Dean, Grad. Bus. Sch., Columbia U.

**MEMORANDUM TO:** Chief Executive Officers of Major U.S. International Corporations

**FROM:** The U. S. Department of State and IMDI

**SUBJECT:** Invitation to participate in a Top Management Roundtable on "Science, Technology, and Development"

**PURPOSE:** To generate U.S. corporate input to the State Department on the subject of "technology transfer" — in preparation for the 1979 United Nations Conference on Science and Technology for Development (UNCSTD) in Vienna

The U.S. Department of State joins me in inviting you or a senior executive from your company to participate in a Top Management Roundtable on the sensitive subject of "technology transfer." Our purpose is to help the State Department fully and accurately reflect your needs and best interests in a United Nations Conference on an issue of critical importance to the U.S. business community, to this Nation's economic strength and competitiveness, and to U.S. relationships with the developing world.

Four regional Top Management Roundtables will be convened this fall; and you or your representative will be most welcome at the Roundtable most convenient to you:

Date	City/Region	Chairman
November 6	New York (East)	Ralph A. Weller Chairman, Otis Elevator
November 8	Chicago (Midwest)	Russell Baker Sr. Partner, Baker & McKenzie
November 13	Los Angeles (West)	Justin Dart Chairman, Dart Industries
November 16	Atlanta (South)	Robert B. Ormsby President, Lockheed-Georgia

These four regional Roundtables are co-sponsored by the U.S. Department of State and IMDI, in cooperation nationally with the U.S. Department of Commerce and the United States Council of the International Chamber of Commerce. The regional cooperating organizations are:

- New York: Institute of International Education  
Columbia University Graduate School of Business
- Chicago: Mid-America Committee
- Los Angeles: UCLA Graduate School of Management  
SRI International
- Atlanta: Southern Center for International Studies

Background and highlights of the program — and why we invite and need your participation — are described on the pages that follow.

Associated with The Johns Hopkins School of Advanced International Studies,  
The George Washington University and the Fund for Multinational Management Education.

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**New York Chairman**  
Ralph A. Weller  
Chairman  
Otis Elevator

**Chicago Chairman**  
Russell Baker  
Senior Partner  
Baker & McKenzie

**Los Angeles Chairman**  
Justin Dart  
Chairman  
Dart Industries

**Atlanta Chairman**  
Robert B. Ormsby  
President  
Lockheed-Georgia

**Editor, Final Report**  
B. C. Christensen  
Vice President  
IBM World Trade

### 1 Uniqueness of Program:

The State Department has commissioned IMDI as an educational partner from the private sector to recruit corporate judgments to be considered in the high-level U.N. discussions. The four regional Roundtables are therefore your opportunity to have your voice heard and your views considered — as informal, private-sector "counsellors" to the State Department on an important subject affecting your business.

What is unique about this program is that it will *not* be starting from scratch on the fundamentals of "technology transfer," but rather encouraging corporate proposals for a "forward thrust" or "creative initiatives" that can lead to concrete results and benefits for all parties. Therefore the four regional Roundtables are seen not as a repetition of past exercises but rather a culmination of other efforts to date.

### 2 The National Interest:

The "transfer of technology" issue — to be debated at the United Nations Conference on Science and Technology for Development (UNCSTD) in Vienna, in August 1979 — has surfaced as one of the most fundamental and controversial issues on the current agenda for discussion between developed and developing nations. The United States — the unquestioned leader of the developed world — cannot sweep the issue out of sight, on the one hand, or "stonewall it" on the other. *Needed:* corporate input from the highest echelons of management to the State Department — this fall — in preparation for the U.N. Conference in August.

### 3 The Corporate Stake:

The issue of science and technology for development touches the vital interests of not just the developing nations ("the customers") but also and very directly "the suppliers": the multinational corporations. It affects your ability to compete at home and offshore, your "cutting edge" in science and technology, your responsibility to shareholders and customers alike. *Needed:* creative corporate responses to the issues we can expect to be raised at the U.N. Conference — issues which could strongly affect, either positively or negatively, both U.S. foreign policy and U.S. corporate activities in the future.

### 4 What We Need from You:

What we seek from each of the four regional Roundtables — each consisting of approximately 30 senior-level corporate executives representing vital sectors of U.S. business — is positive guidance to the State Department on such sensitive issues as the following concerns voiced by representatives of the Less Developed Countries (LDCs)

- The *price* at which technology is transferred.
- The *appropriateness* of transferred technologies to LDC development needs.
- Current *patent and licensing* procedures.
- Allegations of "*unfair practices*" on the part of multinational corporations.
- Increased *regulation* of technology transfer by national governments.
- *International regulation* of the transfer of technology (e.g., a Code of Conduct).
- The need to promote the development of *indigenous LDC technological capabilities*.

*Fundamental* to the debate is *basic philosophy*. The position of some LDCs is that technology is part of the "common heritage of mankind"; this is in contrast to the prevailing opposite philosophy that technology is valuable and hard-earned intellectual property and must be treated as such.

What should be the *State Department position* on each issue? Where is there "room for negotiation" — give-and-take in the bargaining positions — so that LDC needs are met without compromising the basic interests of the U.S. and its business community?

*And most important*: What can corporate leaders propose as creative "new solutions" that will speed the flow of technology so that *all benefit*, including corporate shareholders back home? Too often U.S. businessmen—and the U.S. as a Nation—are unfairly cast in a "defensive" role. What are the *creative initiatives*?

## 5. What We Are Not Asking of You:

Literally thousands of useful and highly important pages have been written on the subject of "technology transfer." We will *not* be asking you for further research; no doubt many of our Top Management Roundtable participants have *already* contributed to the body of knowledge gathered through earlier surveys.

We *will* be distributing — prior to the Roundtables — a Questionnaire of our own to the "Fortune 1000" CEOs, asking for their critique of the major issues. This Questionnaire will build upon — not repeat — the findings of earlier research efforts. We will brief you at the Roundtables on the major results of our survey of CEO opinions. Indeed, their conclusions will provide the *substance* for our own discussions.

## 6. Format and Agenda for the Roundtables:

Each one-day Top Management Roundtable will be conducted as follows:

9:00 a.m. <u>Purpose and goals:</u>	1:30 p.m. <u>Conclusions from CEO survey, Part II: LDC problems and alternate U.S. responses</u>
<ul style="list-style-type: none"><li>• Objectives of day's discussions</li><li>• State Department needs and plans for U.N. Conference</li><li>• Corporate goals — by Roundtable Chairman</li></ul>	2:00 p.m. <u>Workshop II: Discussion and report</u>
9:30 a.m. <u>Conclusions from CEO survey, Part I: Issues before the U.N., and the corporate response</u>	3:00 p.m. <u>Conclusions from CEO survey, Part III: The future: proposals for improvement</u>
10:30 a.m. <u>Workshop I: Analysis of issues through small discussion groups; report back on conclusions</u>	3:45 p.m. <u>Workshop III: Discussion and report</u>
12:30 p.m. Luncheon	5:00 p.m. Adjourn

A small group of CEOs and rapporteurs will meet on the morning following each Roundtable, to summarize the session's overall conclusions.

## 7. Final Report to State Department:

Conclusions of all four regional Roundtables will be summarized in a Report to the State Department, which will also include results of the CEO Questionnaire. The Editor for the Final Report will be B.C. Christensen, Vice President of IBM World Trade Corporation.

## 8. National Steering Committee:

A Steering Committee of senior-level advisors is providing overall guidance for the State Department/IMDI program on "Science, Technology, and Development," with emphasis on what will be achieved in the Top Management Roundtables. Its membership includes:

- Hon. Willis C. Armstrong, Consultant, U.S. Council of the Intl. CoC
- Russell Baker, Senior Partner, Baker & McKenzie
- Hon. C. Fred Bergsten, Asst. Secretary of the Treasury for Intl. Affairs
- B. C. Christensen, Vice President, IBM World Trade
- Justin Dart, Chairman, Dart Industries
- Hon. William D. Eberle, Vice Chairman, U.S. Council of the Intl. CoC
- James P. Grant, President, Overseas Development Council
- Walter E. Hoadley, Executive Vice President, Bank of America
- Antonie T. Knoppers, Chairman, The Salzburg Seminar
- John S. Ludington, President and CEO, Dow Corning
- William F. May, Chairman and CEO, American Can
- Thomas H. Miner, President, Mid-America Committee
- Donald J. Morfee, Vice President of Operations, Pullman
- Wylie S. Robson, Executive Vice President, Eastman Kodak
- C. H. Smith, Jr., Chairman of the Board, SIFCO
- Hon. Alexander B. Trowbridge, Vice Chairman, Allied Chemical
- Ralph A. Weller, Chairman and CEO, Otis Elevator
- Boris Yavitz, Dean, Graduate School of Business, Columbia University

## 9. National Task Force:

In parallel, a Task Force of experts in the field of technology transfer will be reviewing drafts of program background materials and providing their advice at each step of the way. The Task Force includes:

- Peter M. Daniels, Assoc. Dir. of Program, U.S. Council of the Intl. CoC
- Donald D. Evans, Asst. Dir., Office of Intl. Progs., Denver Research Inst.
- Theodore Geiger, Dir. of Intl. Studies, National Planning Association
- Donald L. Guertin, Senior Advisor on Intl. Issues, Exxon
- Harvey W. Wallender III, Managing Dir., Council of the Americas

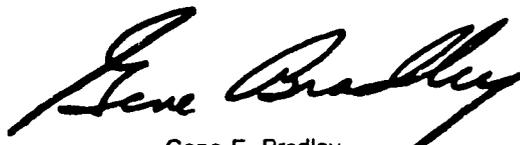
## 10. Regional Coordinators:

A Regional Coordinator will be responsible for the management of the Top Management Roundtable in each city. The respective Regional Coordinators are:

- New York: Wallace B. Edgerton, President, Institute of International Education
- Chicago: Thomas H. Miner, President, Mid-America Committee
- Los Angeles: James O. Lindberg, Vice President, Dart Industries
- Atlanta: Peter C. White, President, Southern Center for International Studies

## 11. How to Register:

Registrations will be handled on a national level by IMDI, and for each region by the Regional Coordinator. To register, please return the attached form to the Coordinator at the address shown on the form.



Gene E. Bradley  
President



Top Management Roundtable on  
SCIENCE, TECHNOLOGY, AND DEVELOPMENT

November 6, 1978

New York

PARTICIPANTS

LUIS A. ALFONSO  
Badger Pan America

LILLIAN ALURRALDE  
Private Consultant

FRANK P. BARNES  
Senior Vice President  
International Telephone & Telegraph  
Corporation

ROBERT C. BAXTER  
Manager, Commercial Development  
Department  
The Koppers Company, Inc.

CHESLEY P.W. BOOTH  
Vice President and Secretary  
Corning International Corporation

KENNETH BROCK  
Vice President for Development and  
Public Affairs  
Institute of International Education

B.C. CHRISTENSEN  
Vice President and General Manager  
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SAMUEL L. HAYDEN  
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# International Management and Development Institute



Top Management Roundtable on

SCIENCE, TECHNOLOGY, AND DEVELOPMENT

November 8, 1978

Chicago

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PRADISTH CHEOSAKUL  
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Thai Asahi Caustic Soda Co. Ltd.

MICHAEL DASHWOOD  
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Miles International Management Co. Inc.

DONALD FURLONG  
Vice President and Manager, Corporate  
Marketing  
Bechtel Incorporated

ALEXANDER HEHMEYER  
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SHARON HOUTKAMP  
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# International Management and Development Institute



Top Management Roundtable on

## SCIENCE, TECHNOLOGY, AND DEVELOPMENT

November 13, 1978

Los Angeles

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# International Management and Development Institute



Top Management Roundtable on  
SCIENCE, TECHNOLOGY, AND DEVELOPMENT

November 16, 1978

Atlanta

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U.S. Coordinator for UNCSTD



# International Management and Development Institute



Top Management Roundtable on

SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Co-sponsored by the U.S. Department of State  
and the International Management and Development Institute  
in cooperation with:

Institute of International Education  
and  
Columbia University Graduate School of Business  
U.S. Council of the International Chamber of Commerce  
U.S. Department of Commerce

Monday, November 6, 1978  
Institute of International Education  
809 United Nations Plaza  
New York, New York 10017

## AGENDA

- |       |   |   |
|-------|---|---|
| 8:30  | Registration                                  |   |
| 9:00  | <u>Purpose and Goals</u>                      |   |
|       | Introduction                                  | <u>GENE E. BRADLEY</u><br>President, IMDI   |
|       | Welcoming Remarks                             | <u>RALPH A. WELLER</u><br>Regional Chairman<br>Chairman, Otis Elevator Company                                  |
|       | State Department Needs and Plans              | <u>LUDWIG RUDEL</u><br>Special Assistant<br>Office of the U.S. Coordinator<br>for UNCSTD<br>Department of State |
|       | Summarization of Previous Studies             | <u>HARVEY W. WALLENDER III</u><br>Managing Director<br>Council of the Americas                                  |
| 9:30  | <u>Report on Top Management Questionnaire</u> |   |
|       | Summary of Results                            | <u>B.C. CHRISTENSEN</u><br>Vice President, IBM World Trade Corp.  |
|       | Roundtable Discussion (Plenary)               | Corporate Executive Participants  |
| 10:30 | BREAK   |   |

10:45     Workshop 1: The International Agenda  
          Background Briefing: The Issues of             HARVEY W. WALLENDER III  
                  Technology Transfer  
  
          Small Group Discussions:                     Corporate Executive Participants  
          .   Issues before the United Nations  
              -- and the U.S.  
          .   Developing country concerns and  
              priorities  
  
12:15     Plenary Session  
          Summary of Group Conclusions                 Discussion Group Leaders  
  
12:45     LUNCHEON  
  
2:00     Workshop 2: Proposals for Action  
          Background Briefing: Positive                 GENE E. BRADLEY  
                  Corporate Responses to Date  
  
          Small Group Discussions:                     Corporate Executive Participants  
          .   Other present corporate programs  
          .   Proposals for future corporate  
              and government action  
  
4:00     Plenary Session  
          Summary of Group Conclusions                 Discussion Group Leaders  
  
5:00     ADJOURN

( A cocktail reception will be held immediately following the  
  Roundtable. )



# International Management and Development Institute



Top Management Roundtable on

SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Co-sponsored by the U.S. Department of State  
and the International Management and Development Institute  
in cooperation with:  
Mid-America Committee  
and  
U.S. Council of the International Chamber of Commerce  
U.S. Department of Commerce

Wednesday, November 8, 1978  
Chicago Club  
81 East Van Buren Street  
Chicago, Illinois 60604

## AGENDA

- |       |   |   |
|-------|---|---|
| 8:30  | Registration                                  |   |
| 9:00  | <u>Purpose and Goals</u>                      |   |
|       | Introduction                                  | <u>GENE E. BRADLEY</u><br>President, IMDI   |
|       | Welcoming Remarks                             | <u>JAMES G. STAPLES</u><br>Partner<br>Baker & McKenzie  |
|       | State Department Needs and Plans              | <u>SIMON BOURGIN</u><br>Senior Adviser<br>Office of the U.S. Coordinator<br>for UNCSTD<br>Department of State |
|       | Summarization of Previous Studies             | <u>HARVEY W. WALLENDER III</u><br>Managing Director<br>Council of the Americas                                |
| 9:30  | <u>Report on Top Management Questionnaire</u> |   |
|       | Summary of Results                            | <u>GENE E. BRADLEY</u>  |
|       | Roundtable Discussion (Plenary)               | Corporate Executive Participants  |
| 10:30 | BREAK   |   |

10:45 Workshop 1: The International Agenda  
Background Briefing: The Issues of Technology Transfer HARVEY W. WALLENDER III  
Small Group Discussions: Corporate Executive Participants  
. Issues before the United Nations  
-- and the U.S.  
. Developing country concerns and priorities

12:15 Plenary Session  
Summary of Group Conclusions Discussion Group Leaders

12:45 LUNCHEON

2:00 Workshop 2: Proposals for Action  
Background Briefing: Positive Corporate Responses to Date GENE E. BRADLEY  
Small Group Discussions: Corporate Executive Participants  
. Other present corporate programs  
. Proposals for future corporate and government action

4:00 Plenary Session  
Summary of Group Conclusions Discussion Group Leaders

5:00 ADJOURN



# International Management and Development Institute



Top Management Roundtable on

SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Co-sponsored by the U.S. Department of State  
and the International Management and Development Institute

in cooperation with:

UCLA Graduate School of Management  
and

SRI International

U.S. Council of the International Chamber of Commerce

U.S. Department of Commerce

Monday, November 13, 1978

Room 2381

Graduate School of Management

University of California at Los Angeles

Los Angeles, California 90024

## AGENDA

8:30 Check-in, Danish & Coffee

9:00 Welcoming Remarks

JUSTIN DART

Regional Chairman

Chairman, Dart Industries

J. CLAYBURN LA FORCE

Dean, Graduate School of

Management, UCLA

Purpose and Goals

GENE E. BRADLEY

President, IMDI

State Department Needs and Plans

WILLIAM B. MILLER

Special Assistant to the U.S.

Coordinator for UNCSTD

Department of State

Summarization of Previous Studies

SAMUEL L. NAYDEN

Director of Washington Programs

Council of the Americas

Overview

DR. R. HAL MASON

Professor, International Business

Graduate School of Management,

UCLA

9:45	<u>Report on Top Management Questionnaire</u>	
	Summary of Results	<u>GENE E. BRADLEY</u>
	Roundtable Discussion (Plenary)	Corporate Executive Participants
10:45	<u>Workshop 1: The International Agenda</u>	
	Background Briefing: The Issues of Technology Transfer	<u>SAMUEL L. HAYDEN</u>
	Small Group Discussions:	Corporate Executive Participants
	. Issues before the United Nations -- and the U.S.	
	. Developing country concerns and priorities	
12:15	<u>Plenary Session</u>	
	Summary of Group Conclusions	Discussion Group Leaders
12:45	LUNCHEON	
2:00	<u>Workshop 2: Proposals for Action</u>	
	Background Briefing: Positive Corporate Responses to Date	<u>GENE E. BRADLEY</u>
	Small Group Discussions:	Corporate Executive Participants
	. Other present corporate programs	
	. Proposals for future corporate and government action	
4:00	<u>Plenary Session</u>	
	Summary of Group Conclusions	Discussion Group Leaders
5:00	ADJOURN	



# International Management and Development Institute



Top Management Roundtable on

SCIENCE, TECHNOLOGY, AND DEVELOPMENT

Co-sponsored by the U.S. Department of State  
and the International Management and Development Institute

in cooperation with:

Southern Center for International Studies

and

U.S. Council of the International Chamber of Commerce

U.S. Department of Commerce

Thursday, November 16, 1978  
Atlanta Historical Society  
3099 Andrews Drive, N.W.  
Atlanta, Georgia 30305

## AGENDA

- |       |   |   |
|-------|---|---|
| 8:45  | Registration                                  |   |
| 9:00  | <u>Purpose and Goals</u>                      |   |
|       | Introduction                                  | <u>GENE E. BRADLEY</u><br>President, IMDI   |
|       | Welcoming Remarks                             | <u>ROBERT B. ORMSBY</u><br>Regional Chairman<br>President, Lockheed-Georgia           |
|       | State Department Needs and Plans              | <u>JEAN M. WILKOWSKI</u><br>U.S. Coordinator for UNCSTD<br>Department of State        |
|       | Summarization of Previous Studies             | <u>SAMUEL L. HAYDEN</u><br>Director of Washington Programs<br>Council of the Americas |
| 9:30  | <u>Report on Top Management Questionnaire</u> |   |
|       | Summary of Results                            | <u>GENE E. BRADLEY</u>  |
|       | Roundtable Discussion (Plenary)               | Corporate Executive Participants  |
| 10:30 | BREAK   |   |

10:45	<u>Workshop 1: The International Agenda</u>	
	Background Briefing: The Issues of Technology Transfer	<u>SAMUEL L. HAYDEN</u>
	Small Group Discussions:	Corporate Executive Participants
	. Issues before the United Nations -- and the U.S.	
	. Developing country concerns and priorities	
12:15	<u>Plenary Session</u>	
	Summary of Group Conclusions	Discussion Group Leaders
12:45	LUNCHEON	
2:00	<u>Workshop 2: Proposals for Action</u>	
	Background Briefing: Positive Corporate Responses to Date	<u>GENE E. BRADLEY</u>
	Small Group Discussion:	Corporate Executive Participants
	. Other present corporate programs	
	. Proposals for future corporate and government action	
4:00	<u>Plenary Session</u>	
	Summary of Group Conclusions	Discussion Group Leaders
5:00	ADJOURN	



Appendix 8: ROUNDTABLE DISCUSSION QUESTIONS

Discussion Worksheet for:

WORKSHOP 1 -- The International Agenda

1. Effectiveness of Present Technology Transfer Methods:

In general, do you believe the present methods for technology transfer are adequate to meet the needs of both developed and developing countries, or do you believe some reforms are required? If you believe reforms are required, what would you suggest?

2. UNCSTD Agenda:

What general issues would you like to see on the agenda for UNCSTD?

3. LDC Infrastructure:

Taking into account differing development levels of LDCs, which areas of LDC infrastructures are generally in greatest need of strengthening?

4. Corporate Role:

In which of these infrastructure areas can international companies most effectively help meet LDC needs?

5. Government Policies:

How can developed and developing country governments act to encourage the greatest possible corporate commitment to meeting LDC science and technology needs?



Discussion Worksheet for:

WORKSHOP 2 -- Proposals for Action

1. Individual Company Initiatives:

What can individual corporations do to continue to meet the science and technology needs of LDC host countries?

- . What initiatives can be applied within the daily pursuit of business?
- . What can a company do to be a good "corporate citizen," going beyond daily business operations to providing community service programs in host countries?

2. Joint Corporate Initiatives:

Recognizing that corporations have an interest in meeting LDC science and technology needs, what initiatives can companies, working together, take to help address the development concerns of host LDCs?

3. Government Proposals:

What policy initiatives -- if any -- should individual developed and developing country governments consider to meet the needs of "science, technology, and development"?

4. Government-Business Joint Efforts:

What international government-business cooperative efforts should be pursued to facilitate technology transfer at each stage of the transfer process -- from selection and transmission to installation and utilization?



Appendix 9: ROUNDTABLE SUMMARY HIGHLIGHTS

Summary Highlights of  
New York Top Management Roundtable on  
SCIENCE, TECHNOLOGY, AND DEVELOPMENT

I. General Observations

1. The effective transfer of technology depends on recognition of the interdependence between developed and developing countries and mutual understanding of LDC and MNC needs, objectives, and capabilities.
2. The present system is flexible and is capable of accommodating a variety of MNC-LDC situations; there is a need to identify possible areas for accommodation.
3. In general, government intervention is believed to impede technology transfer; there is a need to clarify which types of government involvement are most detrimental to effective transfer and which types may be useful.
4. By contrast, positive incentives, or the removal of impediments, can be a major stimulus to effective technology transfer which can benefit both parties — the MNCs and LDCs.

II. Specific Recommendations

1. There must be strong business representation on the U.S. Delegation to UNCSTD.
2. The U.S. Government must support the protection of property rights at UNCSTD.
3. The U.S. Delegation should clarify the potential positive contribution of private sector efforts in science and technology.
4. Although there may be disagreement as to whether these items should appear on the UNCSTD agenda, the U.S. Delegation should enter the Conference with an understanding of U.S. business views on investment guarantees and the cost of technology.
5. Set as a goal helping LDCs, wherever appropriate, to build up their own capacity to make effective use of technology (through strengthening the management base, aiding education, etc.).

6. Explore fresh approaches to helping raise LDC general education levels (such as common funding of school building).
7. Establish an IESC-type program to provide corporate personnel -- particularly at technical levels -- for specific LDC projects. For example, a pool of retired corporate technical specialists could be formed upon which to draw for particular projects. Key point: this involves determining the source of funding.
8. Extend corporate technical training programs to non-employees (and secure adequate funding for same).
9. Make greater use of business organizations -- for example, American Chambers of Commerce -- for joint corporate efforts in LDCs.
10. A U.S. centralized agency or other mechanism should be established to coordinate U.S. technology transfer and other international economic policy.
11. U.S.-LDC government-business brainstorm sessions should be held to identify technology transfer needs, objectives, and capabilities.



# International Management and Development Institute



## Summary Highlights of

Chicago Top Management Roundtable on

### SCIENCE, TECHNOLOGY, AND DEVELOPMENT

#### I. General Observations

1. The marketplace should determine the price and manner in which technology is transferred.
2. Technology should be transferred on a cost-benefit basis favorable to both parties.
3. Government need merely provide a favorable climate (e.g., eliminate disincentives) and MNCs can do the rest.
4. The transfer of technology is not the basic problem; rather, it is developing the capacity of the LDC to receive the technology.
5. Efforts should be made to match the technology transferred to real LDC needs.

#### II. Specific Recommendations

1. The U.S. Government should provide a focal point for supporting U.S. trade, investment, and technology efforts, and commit resources to implement this.
2. The State Department science office should be urged to better address the technology needs of the American business and commercial communities in its reporting and policy making, in light of the development needs of the LDCs.
3. Establish a top management liaison group to work with the U.S. Government on how best to tap already existing government sources of business and commercial intelligence for better availability to the business community.
4. Make certain that competent high-level business representatives are included in the U.S. Delegation to UNCSTD.
5. Make equally certain that the major conclusions and proposals from the four Top Management Roundtables are made available to the U.S. Government and other representatives at UNCSTD.
6. Train LDC managers in companies in the U.S. and other OECD nations, and explore using present institutions or creating necessary new ones (i.e., an international management training program).

7. Communicate existing contributions resulting from MNC operations, as well as expanding them.
8. Make available MNC management and technical training programs to host country nationals in fields related to company operations.
9. Explore how to involve medium- and smaller-sized technologically-oriented U.S. companies in the transfer of technology for mutual benefit.



# International Management and Development Institute



## Summary Highlights of

Los Angeles Top Management Roundtable on

### SCIENCE, TECHNOLOGY, AND DEVELOPMENT

#### I. General Observations

1. The U.S. Delegation to UNCSTD should have a very precise definition of its understanding of the purpose of the Conference and what we hope to achieve together in stimulating technology transfer.
2. Every effort should be made to prohibit the U.N. Conference from becoming a surrogate Code exercise. If it does, the U.S. should withdraw and seek other avenues for stimulating effective transfer of technology to developing countries in need of it.
3. It was generally felt that the U.S. Government should assume the initiative, not the defensive, at the U.N. Conference in explaining the U.S. government-business system and how to encourage transfer of technology, and in setting forth positive possibilities involving the private sector.
4. There is a need for greater information both for supplier and recipient as to development needs and goals, if the technology supplier is to meet those needs.
5. In the transfer of technology both developed and developing countries will obviously operate under generally acceptable business practices.
6. There is benefit in gradualism. The transfer of technology to LDCs should be commensurate with the recipient country's ability to accept it.
7. "Social responsibility" programs are essential but should be commensurate with operations within a competitive market system.

#### II. Specific Recommendations

1. The starting point is for the U.S. Government itself (including the Congress, Administration, and independent agencies) to clarify and coordinate precise policies affecting the ability of U.S. companies to do business and transfer technology overseas.
2. The LDCs should be encouraged to clarify their own technological, economic, and commercial policies in order to encourage and make it possible for a foreign company to invest its resources. (This point was underlined as fundamental.)

3. Form a joint government-business council in the LDCs both for liaison and communication purposes and for analyzing needs/capabilities, perhaps modeled after the U.S. joint aerospace committee (a proposal by astronaut Gordon Cooper of Walt Disney Productions).
4. Organize a "borrowed executive" program for executives still active with their corporations, perhaps patterned after the IESC program for retired executives and linked to an organization such as the Business Roundtable.
  - a) Make available skilled technicians (foremen, etc.) -- either active-duty or retired -- to assist in developing skills in host countries.
  - b) Make available R&D experts -- either active-duty or retired -- to assist in developing research skills in host countries.
5. There is a strong sense that there should be major U.S. business representation in the U.S. Delegation to UNCSTD (unanimous conclusion).
6. Take steps to involve many more small and medium-size companies both through existing mechanisms and through feasibility studies on how this can be accomplished, perhaps involving developed country consulting agencies with LDCs in the "match-up" process.



# International Management and Development Institute



## Summary Highlights of

Atlanta Top Management Roundtable on

### SCIENCE, TECHNOLOGY, AND DEVELOPMENT

#### I. General Observations

1. We should endorse the U.S. Government position in avoiding international regulation and the setting up of new institutions.
2. There should be more creative U.S. Government support/promotion of U.S. companies overseas.
3. Governments should allow maximum freedom for companies to negotiate their own contracts.
4. The effective transfer of technology is a continuous, long-term process, not a "one-shot deal," and it therefore requires long-term relationships, usually requiring an extended period of time.
5. International cooperation can best be accomplished through gradual evolution rather than binding codes or formal forums such as GATT.
6. The U.S. Government should assume the initiative to document the benefits and contributions of MNCs to development, and to educate on the private enterprise/market system.
7. The most effective participation by either government or business in the development process is that which will provide either immediate or eventual mutual benefit to receiver and donor.
8. The U.S. Government should enter UNCSTD with different approaches for different types of LDCs.

#### II. Specific Recommendations

1. The U.S. Government can best serve both MNCs and LDCs by providing information to MNCs on LDC investment attitudes, laws, and opportunities, and advising LDCs of the potential or actual impact of their regulations on foreign investment.
2. The U.S. Government should adopt new initiatives in helping the smaller/poorer LDCs to analyze how MNCs could best help them to meet development goals, and in helping to bring the two parties together.
3. The U.S. Government should undertake a project to investigate what other governments are doing in cooperation with their own companies to promote technology transfer, to see how the results might be applied in the U.S.

4. The U.S. Government should aid LDCs where feasible in establishing research, development, and management institutes, and involve the MNCs in providing technical personnel who would act as instructors and/or visiting professors.
5. The MNC should play a major role in education and training in LDCs:
  - a) Provide educational programs/materials on the private enterprise system.
  - b) Provide educational toys to develop familiarity with technology.
  - c) Establish Junior Achievement-type programs and apprenticeships.
  - d) Establish joint government-business-sponsored vocational schools/programs where MNCs provide the teachers/trainers and materials.
  - e) Consider a multi-company program for conducting in-company management training in both the U.S. and LDCs, perhaps with development bank or other funding.
  - f) In any training program, it is preferable to bring the training to the LDC rather than bring the student to the U.S.
6. Expand IESC-type activities for both retired and especially active-duty executives.
7. Endorse the concept of a "blue chip" MNC representative panel to assist in the UNCSTD discussions.



**The INTERNATIONAL MANAGEMENT AND DEVELOPMENT INSTITUTE (IMDI) is a nonprofit, educational institute headquartered in Washington, D.C. Its prime purpose is to strengthen corporate management teams internationally through executive seminars, management training, strategic planning, government-business programs, and publishing efforts on the international corporation.**

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