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THE PRINTED WORD
IN
U.S. DEVELOPMENT ASSISTANCE

(Identification of problems;)
(Recommendations for action)

A. I. D.
HISTORICAL
COLLECTION

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DISCUSSION--REVIEW DRAFT

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	Page
PRODUCTION	3
HIGHLIGHTS AND RECOMMENDATIONS	11
CHAPTER I. The Printed Word as a Tool for Knowledge Transfer in U.S. Development Assistance	25
A. Setting	25
B. Summary of Technical information services in past U.S. development assistance programs	29
1. Central technical information backstopping	30
2. Development and strengthening of LDC libraries and technical reference centers under bilateral projects	39
C. The present situation: activities and problems	45
1. Publications backstopping services	45
2. Newer knowledge-transfer services	46
3. Services for libraries and LDC reference centers	49
D. Specialized programs involving the printed word, supported directly or indirectly under U.S. Government development assistance programs	52
CHAPTER II. Generation and Use of Printed Materials in National Development Programs; and Shaping of Local Capability to Produce	60
A. The Printed Word in Industry and Other LDC Productive Enterprise	60
B. Printed Materials in LDC Educational Improvement Programs	66
C. Current Problems in LDC Educational Improvement Programs of Particular Relevance to the Instructional Materials Analysis	85
CHAPTER III. Overseas Projects Involving Application and/or Development of Printed Materials	95
A. Latin American Region	95
1. Highlights for the Region	95
2. Illustrative Current Projects involving printed materials for transfer of technology; and library development	105

3.	Illustrative Projects involving indigenous development of technical and instructional publications; and development of local publishing capability	107
B.	Near East--South Asia Region	133
1.	Highlights for the Region	133
2.	Illustrative Current Projects involving printed materials for transfer of technology; and library development	134
3.	Illustrative Projects involving indigenous development of technical and instructional publications; and development of local publishing capability	136
C.	East Asia Region (excluding Vietnam)	143
1.	Highlights for the Region	143
2.	Illustrative Current projects involving printed materials for transfer of technology; and library development	144
3.	Illustrative Projects involving indigenous development of technical and instructional publications and local capability	146
D.	Vietnam	150
1.	Printed Materials for knowledge transfer; and library development	150
2.	Printed Materials in Vietnamese educational development	152
E.	Africa	160
1.	Highlights for the region	160
2.	Illustrative Current Projects involving printed materials for transfer of technology and concepts; and library development	161
3.	Illustrative Projects involving indigenous development of technical and instructional publications; and development of local capability	162

ACHIVEMENTS

1.	The role of technical information in development	167
2.	Major technological innovations affecting the application of the printed word for education and knowledge transfer	184
3.	Outline of the types of uses of published materials in formal and non-formal education and knowledge-transfer projects	193
4.	Listing of relevant documents (partially annotated).	198

THE PRINTED WORD IN U.S. DEVELOPMENT ASSISTANCE

INTRODUCTION

This report deals with the role of the printed word in U.S. development assistance--past, present and future. The past is traced to provide perspective for the comments on the present and for the suggestions concerning the future.

The material is treated in logical sub-groupings: 1) transfer to and diffusion of development-related knowledge in the LDCs, with print media as the vehicle; and 2) local generation and use of printed material as a facilitator of the development process. The role of the library and related organized collections of knowledge embodied in the printed word is handled primarily in terms of its role as a knowledge-transfer mechanism; but also secondarily in its Institutional role as an indigenous disseminator of concepts and ideas. A most important--but separable--topic, relevant to both aspects of the developmental role of the printed word, is the development of indigenous capability for the generation, adaptation, publishing, production, storage, marketing and use of print media. This aspect is handled in this report as an element of the "local generation and use" category.

The factual analysis, conclusions and suggestions embodied in this report are of particular timeliness at the present transitional stage of U.S. involvement in overseas development assistance efforts. As pointed out in Administrator Hannah's statement of January 24, 1972, the U.S. is engaged in a vigorous effort to restructure its overseas assistance activities to meet the needs of the decade of the 1970's--which demands concepts and approaches radically.

different from those of the past. The urgent needs of the two-thirds of humanity living in the LDCs dictate a continuing broad developmental-assistance program, even more directly relevant to their immediate requirements. However, U.S. foreign aid resources are shrinking steadily in actual terms--and even more dramatically on a per capita basis, due to the surging population increases in the LDCs.

The situation demands increasing effectiveness in our assistance programs; innovative approaches; and an assurance that our limited resources will be channeled only to activities of the highest priority and with the greatest cost/benefit ratio. According to plan, future U.S. development assistance will be channeled increasingly through regional and multilateral entities; the leaders of the LDCs themselves must play an expanded role in planning and managing their own developmental activities; and the U.S. expert presence overseas will be greatly reduced.

Our future aid efforts will be shaped in a context whereby the potential of our special capabilities in science, technology and management--development and business administration techniques can be capitalized upon to meet the basic human needs of the peoples in the developing areas. The Administrator's policy statement emphasized particularly the need for professional skills and innovation of the first order; significantly new approaches; and the diffusion of information and technology. The Administrator further emphasized that ID's central concept in strengthening indigenous research capabilities will be the welding and strengthening of worldwide networks of institutions doing comparable research (a concept fully in line with the thrust of UNESCO on the UNISIST project, which is strongly supported by the National Academy of science). The Administrator's statement emphasized the significance of

linkage build-ups as a tool for transferring knowledge which would otherwise be unavailable to the LDCs, due to its tremendous developmental cost.

In his January policy statement, the Administrator emphasized that the new approaches would involve "technical assistance policy and strategies which will permit a coordinated employment of AID's resources in research, institutional grants, and major pilot programs in innovative approaches of the solution of critically key problems of development".

In the context of the new policy and plans for the future, two facts stand out as of primary relevance to the role of the printed word in future U.S. development assistance efforts:

1. The U.S. presence overseas (experts, advisors, technicians) will be greatly reduced. The U.S. staffer's role as a change agent will be increasingly less important, as the LDC's role increases and a multi-lateral or regional context comes increasingly into being. These changes will inevitably tend to reduce the scope and volume of direct transfer of U.S.-source concepts, techniques, skills and knowledge to the LDCs.
2. The only logical, continuing channel for direct transfer of the best and most appropriate of the special capabilities of this nation-- as referred to by Administrator Hannah--is through the medium of the printed word, both through linkages and networks referred to in his message, and through the provision of printed materials, of appropriate types, as a continuing element in the U.S. input into

all bilateral and U.S.-assisted regional and multi-lateral projects for development assistance, for appropriate in-country adaptation, diffusion and use. (This report deals with some of the techniques.)

A fact of special significance, generally undisputed in past years, is that the printed word as a knowledge-diffusion system is substantially higher in cost/benefit ratios than that for any system which involves the work of individual experts in person-to-person contacts--whether as advisors or as training program participants.

Printed media also have the inherent benefit of a capability to reach a much larger ultimate audience, at any one time or over a span of years.

Hence, this report proposes that this knowledge-transfer system receive special attention in the experimental, testing and innovative-approach emphasis which is the stated frame for future U.S. involvement in development assistance. Broadened use of the printed word for LDC development should thus in itself be accorded the attention and status of a "Priority Problem Area", with future appropriate action shaped accordingly.

In his January 24 statement to AID employees, Administrator Hannah emphasized "Programming economic assistance more directly to meet basic human needs..."; and stated that AID had "singled out areas of special concentration such as...education...where improvements will directly touch upon the lives of hundreds of millions and in which the United States has much to offer." Recent policy and program directions of the Technical Assistance Bureau have been fully in accord with this stated policy. In the education sector,

priority emphasis is being placed upon the identification of new approaches to assure more and better education at lower per-pupil costs; to enrich the learning experience through innovative approaches; and to expand learning available outside the formal school system, to meet the requirements of LDC adults and youth not in school, for the knowledge and practical skills requisite for higher personal living standards as well as for an effective contribution to the economic development of their nation.

There are major areas for urgent attention to the instructional materials element of educational endeavor which appear to possess high potential for moving toward the Administrator's stated goals. Properly applied instructional materials--primarily though not exclusively in printed form--are at the heart of the modern educational process--whether formal or non-formal; whether conventional or a system based on educational technology. Further, the essential instructional materials element is agreed to be the single element with the highest cost/benefit ratio of all educational-program elements or inputs.

Hence, this report, in appropriate context, provides suggestions for broadened attention to the instructional materials element in AID-assisted educational improvement programs. It suggests more effective engagement of the U.S. educational publishing industry--and the wealth of instructional materials it has generated--in AID's overseas educational efforts. It suggests widespread action for exchange and testing of existing instructional materials; and the actions necessary to assure improved LDC capability for the development, publication, production and distribution of instructional materials.

HIGHLIGHTS AND RECOMMENDATIONS

More vigorous efforts of a creative, innovative nature are a stated essential as the U.S. development assistance effort moves to meet the requirements of the 1970's. A major element in the new directions can and should be rational, effective and thoroughly professional use of the full potential of the printed word as a tool for development, to overcome a significant gap in the past program of the Agency.

However, even the most casual appraisal of the present situation reveals that for this to happen, policy and funding levels must change and new approaches be applied. For the most rapid gains and the highest yield of results at minimum cost, significant new emphasis must be placed on action to assure effective program use of the wealth of material already available in printed form--but largely uncataloged and not applied in even the slightest multiplier manner in U.S.-assisted overseas development programs. Similarly, intensified involvement of the wealth of expertise available in the U.S. private sector should be tapped to help assure the most effective possible program involving the printed word in overseas development.

In the tabulation which follows immediately, a series of observed problems are identified; and proposals made for both long-term and short-term corrective actions. Substantially more detail on all of these points is provided in Chapters I, II and III.

It is worth strong emphasis in this highlight statement that the effective use of the potential of the printed word in development programs is a highly-complex and many-faceted matter. The effective marshalling of varied U.S.

information sources is involved, as are the elements of organizing to handle most effectively the overseas communication and diffusion of the knowledge and concepts embodied in the printed word.

Of even more long-range significance is the absolute essentiality of strong, well-organized and positively-oriented Institutional capability in the LDCs for the receipt, analysis, storage, processing and diffusion of the in-coming material--as well as the de novo development of materials in-country. If the LDCs are to keep pace with developed nations in national income and standards of living, such information-handling capability must grow at a pace commensurate with developments in the technology of information communication, classifying, storage and handling.

Hence, if AID is to move effectively toward both long- and short-term action to capitalize on the potential of the printed word for knowledge transfer in its future programs--and to strengthen the LDC capability in handling scientific and technical information resources as the presence of U.S. change agents working overseas declines--careful and substantial study and developmental activity is a prerequisite.

A specialized aspect of printed word use in the developmental process is instructional materials for formal and non-formal education and training. This aspect of the use of the printed word involves an array of actions, knowledge and skills which is basically different from the handling of knowledge-transfer through the printed word in many other forms of developmental activity. The special significance of printed materials for the educational sector relates not only to its fundamental relationship with human resources development, but also to its sheer size--where textbooks

are used at all in LDC educational systems. By any measure, probably, the activity level for instructional materials is far higher than the printed word use for any other single sector--and in some countries, probably, the combined print media activity for several other sectors.

Consequently, AID should devote even more attention than in the past to the needs and potential for broader application of the instructional materials element in educational development--and especially for new and innovative approaches for both the formal and the non-formal systems.

THE PRINTED WORD IN U.S. DEVELOPMENT ASSISTANCE

Significant Problems; and recommended actions

Problem

Action

I. Relating to the role of the printed word as a tool for knowledge-transfer and diffusion:

1. The full potential of the printed word as a tool for development has seldom been realized in U.S.-assisted programs, due to spasmodic and usually inadequate funding and attention to this element in the Agency's programming.

Make an early policy decision assigning high priority to the mobilization and use of the printed word as a tool for knowledge diffusion for development. Designate technical information use as a "key problem area" to assure necessary priority attention.

2. The Agency has no organizational focal point for overview or coordination of its use of the printed word in its program, nor to mesh its activities with those of other donors.

Identify in the Agency structure an appropriately-high focal point to translate the proposed new policy into action; to plan and coordinate future activities using the printed word; and to represent the Agency in its dealings with other donor entities. (As deemed most effective after necessary pre-appraisal, funding and project implementation activity might be either centralized; or decentralized on a sector basis.)

3. For almost a decade, the organized professional planning overview needed to assure a technical information program adequate to capture the true potential of the medium has been lacking. Such planning, positively oriented, is an essential for the innovative approaches required for the developmental program of the 1970's.

A systematic appraisal should be made of the funding, staffing and backstopping resources to shape a sound action program, combining in-house and contractual services needed to translate the proposed policy decision into effective action, and meet the goals established by the Administrator, per his 1/24 memo. An integral aspect must be a hard, realistic look at both capabilities and limitations of the existing Agency in-house and PASA/contractual backstopping arrangements.

12
4. The Agency and its predecessors in the development assistance effort has "lacked a memory"; and has never systematically assembled, evaluated and stored for ready retrieval and future use knowledge and printed materials developed under its own past programs, as well as the materials resources resulting from others' efforts.

AID's "Reference Center", accumulating some of the materials generated from past knowledge transfer, was a first step; but has not been geared for effective transfer of materials for field use. Action is now under way to study new approaches, including cataloging of materials by subject, to test field needs and provide copy--for a limited range of materials. This action should be accelerated and expanded. Exchange should be initiated with other action entities.

5. To date, AID has not devoted any significant attention to the gap in knowledge transfer from the U.S. to LDCs which is sure to attend the planned large reductions in the presence of U.S. experts overseas; nor have the possible alternatives been studied in sufficient depth.

6. AID has not yet contributed effectively to the efforts of UNESCO, the OECD, the National Academy of Sciences and others to shape global networks for the transfer of scientific and technological know-how--including the prerequisite of shaping in the key LDCs Institutional capability to participate fully in technologically-advanced systems.

Any holding back on our part seems especially unacceptable in view of the outstanding know-how and technological resources the U.S. has to offer, as well as our own national interest in becoming increasingly involved in mutually-beneficial

At least to some extent, effective information-transfer systems can fill the gap, and assure the continuing exchange of concepts and know-how between the U.S. and LDCs. Careful attention should be devoted to the best ways of assuring this, in the national interest of the U.S. as well as the LDCs.

Intensify AID involvement in planning and in ultimate action to shape bilateral, regional and global systems for effective transfer and in-country diffusion of scientific and technical information through the means of the printed word, effectively communicated, stored and retrieved.

Provide appropriate funding support for and engage in appropriate joint project activity with multi-lateral entities working on information network planning and structuring.

Take specific action to ensure relatively full engagement of appropriate U.S. expertise in the

developed nations--as emphasized in the Administrator's as in bilateral U.S.--LDC exchanges.

current policy.

7. AID has never supported on a planned, systematic basis the strengthening and use of private, non-Governmental Institutions and organizations for organized efforts to transfer overseas printed materials resources (Occasional efforts of the past have not continued). Similarly, private U.S. firms have not been used extensively or effectively in building the essential technical information capabilities in LDC Institutions.

AID is presently allowing termination of a contractual relationship with a specialized private U.S. non-academic entity (the American Library Association). This relationship, with some needed modifications, could yield significant benefits to probable future Agency efforts for

Through both contract and appropriate 211(d) grants, AID should tap the tremendous potential of pertinent U.S. private sector entities for its future knowledge-transfer efforts. Included could be not only the academic community, but also the educational publishing industry; the U.S. library community; the multi-media and communications hardware firms; and specialists in the storage, cataloging, screening, retrieval and rapid transfer of technical, scientific and professional know-how. AID should support and encourage such involvement, especially that involving the structuring of long-term Institution-to-Institution relationships without Government intervention.

Specifically, reconsider termination of the contract with ALA/IRO, as a first step in this

knowledge transfer through global networks; for non-formal approaches to education; and for generation of software for educational technology installations.

direction.

II. Relating to Generation and Use of Printed Materials in National Development Programs; and Shaping Local Capability to Produce

1. No amount of knowledge transferred overseas is of any use whatsoever unless diffused and used effectively in the recipient country. However, during the past decade, a substantial decline in the overseas flow of U.S. printed materials as an element in U.S. developmental programs has been accompanied by an extremely-serious decline in efforts to develop and to strengthen LDC Institutional capability to receive, catalog, analyze, store effectively, retrieve, adapt, translate or otherwise use and diffuse effectively knowledge embodied in the printed word, as a tool for national development. This shortfall has

The Agency should not only shape new approaches for knowledge transfer on a bilateral, regional and global basis, but should also, as a matter for priority attention, make sure that the LDCs have the technical and financial help they need to build indigenous capability to receive and use modern information resources effectively; and to use it in generating their own new materials. AID should include in its regular bilateral projects elements to assure improvements of information-handling capability in assisted Institutions.

AID should devise and fund specific projects to involve deeply and effectively the capability of

adversely affected the technical capability of many LDC development-related Institutions to use scientific and technical information--not only from the U.S., but from any source.

This problem is one for sharply-increased concern, as the demand for knowledge increases along with surging populations; and as LDCs fall farther behind developed nations in their capability to handle the increasingly-sophisticated and complex knowledge storage and transfer hardware systems.

U.S. private entities--as well as Government Agencies--for shaping both Government and private-sector understanding of and capability to utilize the increasing flows of professional, scientific and technical information which the future will make available for those nations with the capability to utilize it.

AID should engage, as a matter of urgency, in discussions and action projects with the multi-lateral and specialized agencies now working in the area of more advanced regional and global knowledge transfer networks, including the national Academy of Science; The Organization of American States; UNIDO; the OECD; UNESCO; and the relatively new Provisional Secretariat for UNISIST; the proposed AGRIS; and MEDLARS.

In our own national interest, AID should attempt to assure that such knowledge-transfer mechanisms of the future relay not only technical and scientific information, but also materials on our approaches to business administration and management which are compatible with our free enterprise approach to economic endeavor.

2. In addition to inadequate attention to building needed in-country Institutional capability for information handling in LDCs, the Agency in past programs has devoted inadequate attention to the identification and building of regional and/or sub-regional facilities for efficient receipt, analysis, storage, processing, translation, publishing and distribution of printed materials. Despite the potential economy and efficiency of multi-country approaches, the Latin American Regional Technical Aids Centers and the smaller Central American textbook center are the only existing AID-sponsored Institutions of this nature. Some others are being considered; others have existed in the past, and been eliminated, (e.g., the French language RTAC servicing Francophonic Africa).

At an early date, AID should undertake an in-depth professional study of the need for and the cultural/technical feasibility for additional multi-country printed materials production/translation/diffusion centers, to service nations with similar language needs, as well as those which lack the capability and size to support indigenous entities.

If and as promising situations are identified, AID should take the leadership in shaping appropriate multi-country support for and (where feasible) multi-donor funding to build Institutions of an appropriate size and form.

3. In the educational development process, the instructional materials element is probably the most demanding in technical terms; the most fundamental and essential; and generally the element with the highest inherent cost/benefit ratio, comparing input costs to effective education output.

However, in too many past projects, AID and predecessor Agencies have assigned the lowest priority to the instructional materials element; and some projects completely ignore it.

Such shortfalls, where they occur, appear certain to become more critical with expanded application of the newer educational technology systems; multi-media approaches, etc. The shaping of effective printed software for such systems is significantly more complex and time-consuming than is the selection, installation and testing of the system's hardware.

The Agency should adopt as fundamental policy that a first (rather than a last) look to be taken, in every planned educational project, at the instructional materials element--whether it relates to conventional or technology systems; and to formal or non-formal approaches.

Program funding and the requisite technical inputs should be applied in every instance to assure the shaping of the instructional materials needed to translate curriculum concepts into effective education in or out of the classroom.

4. AID and its predecessors have failed completely to assemble, evaluate, catalog and store for retrieval the instructional materials generated under educational-improvement projects it has supported. No systematic interchange of these materials has been made within or between regions and countries; nor between AID and other donor entities.

As a step toward achieving the higher program results and reduced unit costs which the new Agency policy demands, take action for a systematic evocation, assembly and evaluation of existing knowledge-transfer materials, including not only those applicable to formal education but also for the expanding non-formal education and training activities which will constitute an activity of increasing importance.

Establish an appropriate system to catalog, professionally evaluate, store and retrieve such materials to request, for testing, adaptation and application in appropriate situations in many LDC projects.

Provide a service to produce copy of specified segments or entire documents for program use overseas-- either on centrally-funded or self-financed basis, as is deemed most appropriate.

Upon request, the entity handling the instructional materials exchange operation should provide technical advice and service to AID Bureaus, USAIDs, LDC

relating to the range of proved materials available; how to evaluate and to adapt them to local conditions; how to handle questions of the intellectual properties aspect (copyright); and how such materials have been handled in other country situations.

5. Over the years, U.S. development assistance Agencies have failed to evoke and use more than a minute fraction of the knowledge, skills, experience and instructional materials available from appropriate segments of U.S. private industry--publishers; multi-media houses; the library and documentalist community; and computerized knowledge storage/retrieval firms.

The capabilities in such industries constitute a major but untapped resource for U.S. efforts to improve education and knowledge diffusion overseas. The skills and resources available apply both to the

In line with the Administrator's policy as stated in the January 24 memorandum, initiate specific and in-depth appraisal of the best ways to tap the potential of the private sector for improving U.S.-assisted educational and training activities overseas, including but not limited to:

Determination of the applicability in LDCs of U.S.-source instructional materials, with appropriate adaptations;

Planned action to utilize such materials in future overseas programs for educational improvement and non-formal education and training, for maximum

intellectual properties they have developed.

cost/benefit ratios;

Engagement of the expertise of the private U.S. industries in U.S.-assisted projects in the LDCs for the development of needed instructional materials-- and in the process develop improved LDC capability to write and publish appropriate printed instructional materials (and multi-media supporting materials, as appropriate).

21
6. In most LDCs, truly adequate local capability for writing, publishing, printing and distributing textbooks and other printed instructional materials does not exist--though some aspects of the composite may be adequate in many countries.

While a good number of AID and UNESCO projects have helped to develop some LDC instructional materials capability, in all too many projects this element has either been ignored entirely or has not been assigned sufficient priority and funding.

As a matter of high priority, the Agency should carry out a substantial, in-depth appraisal in all key LDCs (where major U.S. educational assistance projects are under way or planned) to produce full and accurate information on the pertinent aspects of indigenous production capability.

The Agency should study in-depth the combination of future needs of smaller LDCs and those with common languages which would dictate regional or sub-regional production centers. The physical aspects

The Agency presently knows altogether too little about the true facts of the LDC capability to produce instructional materials needed now-- and in the future. Especially as non-formal education is expanded, and systems based on educational technology are applied, entirely new ranges of local materials-generation capability are required.

The potential of regional and sub-regional approaches has not been sufficiently established.

should be accompanied by the essential social/cultural/political feasibility aspects.

Both bilaterally and as joint projects with regional and multi-lateral entities, AID should fund and carry out action programs to develop LDC facilities fully adequate to meet the present and identified future needs, emphasizing (insofar as Host Countries policies permit) private sector capability.

In carrying out such development-assistance projects, AID and its intermediary Institutions should involve directly and to the maximum extent the proved skills, expertise and willingness of the U.S. private sector to facilitate overseas instructional materials development capability.

7. The accelerated introduction of new educational systems involving appropriate forms of hardware is receiving substantial study by AID and is

As a matter of urgency, the Agency should examine the current operation and scopes of work of all of its contractors in the educational technology key

destined to play a larger role in LDC educational development. It is not immediately evident, however, that sufficient attention has been devoted to date to the requirements for printed instructional materials software for such systems. These are technically more demanding and more time-consuming than is the hardware; and priority action is needed to assure their availability in advance of systems installation.

problem area, to assure itself that the instructional materials element is receiving or will receive the necessary priority.

If--and to the extent that--such priority has not been applied, action in terms of new funding and/or new, complementary contractual action, should be taken.

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8. From all accounts, a major need now in almost all of the LDCs is an expansion of the provision of non-formal education, of the most basic and practical type, to provide to the nation's adults and to both in-school and out-of-school youth the knowledge and skills they need to make a maximum contribution to the nation's growth.

There is a wealth of proved material available now in the U.S. and in many of the LDCs which could be applied very quickly in early, demonstration

Action, on a priority basis, can and should be taken to extend current non-formal educational activity. As a first step, negotiations with selected key LDCs (where needs are great and receptivity has been established) should yield specific plans for program action, based on existing materials which can be pulled together, adapted and/or abridged, and put to practical use.

Action plans, once developed, should be followed up with the assembly of materials (through appropriate

and/or testing non-formal approaches to education--
through a variety of proved approaches.

To date, the Agency has done very little under
its new approaches in the non-formal program to
carry out actual work in key LDCs, despite the
urgency of the need.

contractual intermediaries) and the conduct of actual
education and training in the LDCs. Skilled and
knowledgeable intermediary Institutions are both
available and interested in such assignments.
Qualified candidates for contracts would include
some Universities and technical schools, plus a
number of private industrial organizations such as
Philco-Ford Techrep; Kentron-Hawaii and its affiliate
American-Asian International; and IBM.

24

9. There appears to be a potential for higher cost/
benefit ratios in future LDC educational systems
under an approach blending more effectively than at
present conventional and non-conventional, printed
materials and multi-media educational approaches and
systems. While a very limited amount of experimentat-
ion has been done in such multiple approaches, their
potential and the true parameters for most effective
blends in given situations have not been established.

As one phase of the emphasis upon more innovative
approaches in AID developmental assistance in the
future, to yield higher quality education at relatively
low unit costs, a planned and determined development
and testing of multi-media approaches should be under-
taken in key LDCs.

I suggest that the TA Bureau be authorized and
provided appropriate funding to undertake action along
these lines, on a joint effort with UNESCO and the
IBRD, looking toward cooperatively-funded major-scale
pilot and demonstration activity.

CHAPTER I

THE PRINTED WORD AS A TOOL FOR KNOWLEDGE TRANSFER IN U.S. DEVELOPMENT ASSISTANCE

A. Setting

While the printed word has consistently played a modest role in developmental programs, present needs and opportunities indicate the necessity for re-thinking and new approaches by A.I.D. to the role of technical resource materials in its developmental programs. The tremendous breakthroughs of the past decade in technology for storage, retrieval and the organized transfer of human knowledge through information--communications techniques make it entirely feasible and seemingly desirable for the U.S. to shape new approaches using them and assign new priorities to knowledge diffusion, which would function as a developmental tool with an extremely high cost/benefit ratio.

The rapid growth of industry and other productive enterprises in many of the LDC's during the past decade--coupled with their insistent demands for full capitalization upon the potential of new techniques and scientific breakthroughs--make renewed consideration of information and knowledge-transfer techniques based on the printed word a matter for serious attention within A.I.D. itself, as well as for intensified interchange with other U.S. donors and multi-lateral entities.

An increasing number of planners and administrators of developmental programs are presently advocating the need for complementing bi-lateral arrangements with substantial and firm regional and global linkages

between the developed nations themselves, and targeting the LDC's in effective diffusion of new concepts, new approaches and breakthroughs in science, technology, management and development administration. In his January 24 statement, A.I.D. Administrator Hannah strongly emphasized that priority in future U.S. development assistance efforts should be placed on "the diffusion of information and technology" and in "the welding and strengthening of worldwide networks of institutions doing comparable research. . . ."

With the accelerating availability and application of computerized approaches, communications satellites and other modern transfer--diffusion hardware; and with several UN Agencies and other entities taking an active role in developmental efforts, continuing advances and the ultimate shaping of global knowledge--transfer networks appear certain. Hence, it appears to be very much in the basic interest of the U.S. itself that A.I.D. become deeply involved at an early date, in line with the Administrator's statement. Only with full A.I.D. involvement--and with the U.S. role in global knowledge transfer and use handled as a priority matter--can we be entirely certain that our special national capabilities and know-how are appropriately included in the materials and services piped into and used by the LDC's. Only in this manner, also, can we be sure that we in turn receive needed feedback from LDC's and other developed nations which it is in our direct national interest to have.

A recent OECD report ^{1/} offers some salient remarks concerning the role of technical, scientific and managerial information in the national growth process. The report, for example, states "Information is the key

^{1/} "Information for a Changing Society: Some Policy Considerations." OECD (Paris) 1971. Report of an Ad Hoc Group on OECD Policy in the field of information.

to man's future....society must learn to use it effectively... Scientific and technical information....is closely linked with economic growth from two different points of view.....The diffusion of information throughout the scientific and technical community facilitates effective progress in research and development; (and) information transfer offers industrial management the chance of taking optimal production decisions on a sound basis." Also, the Group members feel that "...economic growth is a human phenomenon and there is an obvious interaction between scientific and technical knowledge and the socio-economic structure...the body of knowledge is in continuous evolution and it is vital...that information should contain at least the seeds of tomorrow's progress and discoveries."

Further, the Working Group recommended that national governments should "...ensure information availability...accessibility...in a social context...evaluated and analyzed for educational, industrial, policy and other public purposes....it should assure resources to study user needs...and to satisfy them...and to ensure effective management; an understanding of the potential of library systems and the power of modern information technology...and trained information staffs."

On the specific theme of international interdependence, the working group stressed that "...knowledge is global...no field of science or technology is limited in interest or applicability to one nation only...the nations must inter-communicate." The report stated

that "networks are preferable, for economy, responsiveness and innovation...utilizing new technologies for information storage, retrieval and communication...with flexibility in systems and networks...and a balance between national in-and-inter-dependence.... no nation can be truly self-sufficient in scientific and technological information...but the systems must be provided in relation to special national needs." (including the LDC's).

In an earlier, major report prepared for ICA by the Stanford Research Institute ^{2/} on the Agency's industrial technical information program, the team emphasized that "technical information services, properly organized and properly utilized, are one of the most basic and economical tools that any development assistance program can use." The report went on to emphasize "the special significance of non-personal materials resources as an economical knowledge-transfer tool which permits the successful use of generalists rather than difficult-to-obtain specialists, for in-country training and other forms of personal knowledge-transfer."

The SRI report emphasized, in the strongest possible language, the fundamental importance of assuring the Institutional capability in the recipient countries to use and diffuse effectively the flow of technical information resources provided. The team urged the Agency to take early and positive action to assure the development of essential minimum Institutional capability in all targeted LDC's, as an integral

2/ "The Communications Approach to Technical Assistance, with Specific Application to the Industrial Technical Aids Program." J. Ben Lieberman and Robert L. Woodcock, Stanford Research Institute. July 1956

part of its efforts to convert the development assistance program away from the developed nations of Western Europe to the developing nations of Latin America, Africa and Asia. (See also attachment 1, "Role of Technical Information in Development").

B. Summary of technical information services (printed and visual) in U.S. development assistance programs

While printed materials resources have comprised an element in many technical cooperation projects, there have been major and obviously capricious variances over the years in the manner in which A.I.D. and its predecessor Agencies--both in policy and in funding provisions--have provided services based on the printed word. In some periods--and for various sectors of the development process--very substantial and effective programs have been carried out. During other periods, however--and for many of the major elements in the programs--the technical information element has been either lacking or substantially neglected.

On the whole, with the exception of the period of the Marshall Plan program for European Recovery, A.I.D. and its predecessors have failed signally to capitalize upon the full potential of the printed word as an economical, useful and lasting tool for knowledge transfer. Of perhaps even more significance, altogether too little attention has been paid to the technically--demanding task of helping the IDC's to forge the needed local Institutional capability to capture and to use effectively available knowledge--and skills--transfer printed media, not only from the U.S. but from other nations, including more-advanced IDC's.

1. Record of central technical information program backstopping.

During the early years of U.S. technical assistance to Latin America under the program of the Institute of Inter-American Affairs, a limited range of spot services based on the printed word was provided for cooperative projects in the education, public health and agriculture sectors. In these programs, the role of the printed word was mainly that of backstopping the U.S. professionals and experts who were serving as co-directors, advisors and charge agents under bi-lateral programs. There was only limited in-country diffusion of knowledge in printed form--primarily materials for use in local training projects. Most knowledge transfer was accomplished through personal contacts, carried out in the framework of the Servicio programs.

Under the so-called "Marshall Plan" for the economic recovery of Western Europe, a large, positive planned flow of U.S. concepts and technology was provided through a variety of services based on the printed word and on audio-visual media. The "Technical Aids" program was shaped and executed as one of the three integral elements of knowledge transfer, along with participant training and in-country advisory services by U.S. experts.

While total funding for the technical aids program was substantially less than that applied for the other two elements of the program, the results were most substantial; and the non-personal media were agreed to provide by all odds the most economical tool for knowledge-transfer. The substance of the Marshall Plan activity was primarily in the industry

sector, with emphasis upon improved management, increased productivity, and rapid increases in the application of modern industrial technology. Substantial emphasis in the program was also placed upon agricultural methods improvement, and upon the effective motivation of the work force to accept and to adapt to the rapid technological changes required to overcome the major lags in European industrial operations and productivity, as compared to the United States.

The primary elements in the industrial technical aids program during this period included the following:

1. A service providing a continuing flow of the best of the U.S. books, journals and other periodical and monographic literature--plus bibliographic advice. Average, \$1,000,000 per year--including procurement service.
2. Answering individual technical inquiries from European industrial establishments--on products, processes, concepts and technique. This service averaged in excess of \$200,000 per year.
3. Specially-prepared reports transmitting facts, statistics and analytical information on U.S. industry--for specific products and processes, and the experience patterns of key industries. At the peak of contracting operation, these reports involved the expenditure of well in excess of \$1,000,000 over a period of about two and one-half years.
4. Digests and abstract service (periodical) of current U.S. industrial practices and techniques--including technological

breakthroughs. The service was funded at a level of \$80,000 per year.

5. Analysis of the design of key U.S. products for reference by European firms, as one element for potential productivity gains. The service averaged in cost perhaps \$35,000 per year for three years, before it was terminated.
6. Technical film services--U.S. strip films, movies, etc., relating to industrial processes, management concepts, etc. --a program which involved over a several-year period well in excess of \$1,000,000.
7. Technical exhibits service--traveling and stationary exhibits designed in the U.S. and constructed in Europe, to show new production designs and approaches; engineering and management concepts and techniques; tools and tooling used, etc. The U.S. dollar costs alone totaled several hundred thousands of dollars. There is no available record of the Host-country currency costs.

Following the termination of the U.S. engagement in development assistance for European Recovery, U.S. technical cooperation efforts--including the technical information element thereof--were redirected to service more effectively the developmental requirements of the LIC's in Asia, Latin America and Africa. Some assistance had been provided since 1949 under the Point IV program, during which U.S. aid had been

broadened from the earlier conventional sectors of health, education and agriculture to include industry, industrial development, public administration, labor, community development, communications, transportation, public safety and others. During these years, there had been a modest but continuing flow overseas of U.S. printed materials in support of these programs, with the largest volume perhaps being in the agricultural and industrial sectors.

In fiscal year 1955, as part of its efforts to shape its development assistance activities to reach the LDC's more effectively, A.I.D. contracted with the Stanford Research Institute to study its technical information approaches (study noted on page 1, above). In its report, SRI noted that the Agency had been utilizing the potential of the printed word in its on-going programs, but at substantially-less than its potential warranted. In its report, the SRI team stated, "ICA makes too little use of the tested communications techniques and media which have helped build America; and its administration is not sufficiently oriented toward the finding and flow of technical information. While ICA quite properly relies on people. . .it does not provide them with enough of thetechnical information tools. . . .to make their work effective."

The report recommended more substantial funding and more program attention to the potential of this element, for all sectors of the Agency's program, plus action to assure that the materials provided would be used effectively (as noted above).

During the years 1965-61, ICA devoted a somewhat-larger proportion of its resources to services based on the printed word and on visuals,

and appropriate backstopping arrangements were gradually extended and improved, especially in the sectors of industry, public administration, agriculture, public health and labor. An extremely significant new element was introduced through the establishment in 1957 of a regional facility for the translation and publication of Spanish-language versions of needed development-related materials. This "Regional Technical Aids Center" was at first modestly-funded, and handled only non-commercial program-related documents. Increasingly, however, especially after 1960, its funding and the scope of its services was increased, beginning with the successful introduction of a new approach involving commercial publication of Spanish editions of U.S. texts and technical books relevant to ICA projects in Latin America. A film loan library service was also successfully introduced (circa 1958) providing Spanish versions of appropriate technical films for use in industry, agriculture, health and other programs.

At present, this Regional Technical Aids Center project is an important element in the Alliance for Progress program, and is funded at about \$2,000,000 per year.

During this period, the forms of service provided through the printed word as a transfer tool became markedly more similar between the several sectors, with the exception of Education, where the nature of the operation is and has been substantially different than in most others, such as industry, labor, public health, transportation, etc. Services were generally similar to those of the Marshall Plan industry

program, but with appropriate adaptations for the target countries.

Of the clearly-defined types of backstopping services provided, the largest single continuing element has usually been based on technical literature and journals for library shelf enrichment; and (in some situations) books to be given to individuals in support of answers to technical inquiries. Literature backstopping activities have consistently included bibliographic service; procurement assistance to USAID's and Host Country entities; sampling of new books; distribution of pamphlets and books obtained from U.S. organizations; support for the affiliation of the libraries of developmental Institutions with the U.S. Book Exchange; and facilitation of the overseas flow to A.I.D.--assisted Institutions of used books donated by private voluntary agencies; by Foundations; and by other entities. A variety of demonstration activities have been carried out, including the provision of specialized collections of low-cost technical paperbound books; scholarly publications; books relating to the development process; and appropriate textbooks for student rental and for reference use by textbook writers.

A consistent service in all sectors was generally the provision of a periodical, summarizing current professional and technical literature in the field in digest or abstract form. Such digest services have included public administration; community development; housing; industrial technology; industrial management; and economic development. (While many of these series are no longer provided, the economic digest service continues, under the title "Development Review").

A consistent service for almost all sectors has been the provision

of appropriate reports, articles, special studies and related non-commercial occasional writings of direct relevance for on-going assistance programs. Some of these are designed primarily for use by the A.I.D. technician; but most have more lasting value when included in the reference shelves of A.I.D. -- assisted developmental Institutions. In some instances, this material has been culled from existing publications. In other cases -- especially for Agriculture, Industry and Public Health -- special contracts have been placed to generate specified technical materials.

An on-going service of substantial significance has been and is the provision of technical information based on specific field inquiries. Some of this has been handled by ICA-AID technical service offices; but more has been handled through backstopping contracts with public and private entities.

With the re-organization of the Agency's programs in 1962, the technical information elements in all of the several sector backstopping activities were centralized in a new "Communications Resources" Office, which combined the former Office of Communications Media with the backstopping services offices. In this structure, handling of the printed materials element of the activity was placed in a new "Publications and Technical Services Branch", charged with the responsibility for assuring an appropriate range of printed materials services for the Agency's technical cooperation programs.

Funding for the activities of this Branch averaged roughly \$750,000 per year, with the industry sector utilizing a disproportionately -- large

percentage of the total. Printed materials services for non-industry elements were expanded during these years; and a range of new services were provided, especially in public health, agriculture, labor and public administration.

During this period, the Africa Bureau, with technical help from the Publications and Technical Services Branch, established an urgently-needed regional translations-publications facility for French versions of both administrative and technical materials, for use in the French-speaking nations of Africa. This regional entity--patterned after the Latin American RTAC--provided services not only to French Africa but also to other French-speaking nations of the world, including the middle East and Southeast Asia.

Unfortunately, however, with the exception of the Regional Centers, the Agency had not up to this point devoted as much thought, effort and funding as was needed to assure fully-effective in-country utilization of much of the materials provided. In some cases, careful in-country work had led to outstandingly-effective technical information entities in some LDC's. In too many instances, however, such entities as did exist were marked more by their limitations than by their strength.

Under new directions of the A.I.D. program, activities in some major sectors (such as industry and transportation) were sharply reduced--significantly affecting the need for technical information backstopping. A policy decision was then made to eliminate the Communications Resources operation as a separate entity, and to reduce total staffing and funding support for the non-personal resource materials activities. The re-

iduals of the former publications and technical services activities and Washington staff members were distributed between the several sectoral Divisions of the new Office of Technical Cooperation and Research. Field staffing for this element of the program, including assistance in developing institutional competence in the use of "communications resources" was eliminated.

During the years following, modest publications backstopping for field operations has continued in some sectors, including labor, housing, public safety and agriculture, through PASA arrangements with old-line Government Agencies. Backstopping for the Public Health program continued in a relatively effective manner through in-house staff services (including occasional new specialized reports) plus important new services provided under contract by the National Library of Medicine and the Office of International Health. Some useful--but limited--publications backstopping service continued for the development administration and nutrition activities.

A significant change was affected in backstopping for the residuals of the former industry program activity, which was handled after 1964 primarily by the private enterprise operation. The prior backstopping arrangement with the Department of Commerce's Office of Technical Services was terminated. The residuals of the large collection of industrial reports and publications, training course outlines and leaders' guides, technical digest reports and technical inquiry service reports were stored in a then-new "Reference Center" for possible future use. Some multiple copies were sent to selected USAID's.

A new arrangement was then effected, through contract with the private voluntary organization, "Volunteers in Technical Assistance (VITA) whereby this entity received the collection of files and records of the OIS/DOC technical inquiry service project, and undertook to handle for the Agency future technical inquiries for the industrial development sector.

In addition, a number of the former specialized industry program manuals relating primarily to industrial development (feasibility surveys, data on requirements for new industrial establishments, etc.) were stocked for future sale by the National Technical Information Service, then a relatively new entity located in the Department of Commerce.

2. Development and strengthening of LDC libraries and technical reference centers under past U.S. bi-lateral projects

Some facility for the organized storage, retrieval and dissemination of information and knowledge accumulated of knowledge in the past is an essential tool for all developmental endeavors. The total fund along with the world's population and rapid of extant knowledge has grown rapidly/urbanization; accelerating scientific and technological development; and the increasing size and complexity of all forms of economic endeavor. Both the size and the technical complexities of knowledge storage and retrieval operations have had to grow rapidly and continuously, to cope with this increasing fund of knowledge and to meet the expanding demands made upon it. Especially during the past decade, the role and functioning of the library and related materials-gathering focal points has been

revolutionized by technological breakthroughs such as micro-storage techniques; computerized cataloging, storage, retrieval and print-out; and the instant transmittal of printed materials over vast distances. Hence, it is no longer possible for the layman or even the skilled professionals in other disciplines to handle the operation of their reference collections in a satisfactory manner. This has become the task of skilled librarians, fully versed in the most recent techniques and approaches.

The role of the organized accumulation--dissemination point is important for all segments of modern economic activity. The educational process relies heavily not only upon the texts assigned for classroom use but also upon the facilities which assure that students have convenient access to books, journals, newspapers and other publications essential for learning enrichment, individualized research and study and supplemental reading. Similarly, the teachers and professors require such a focal point for the published materials needed for current research and continuing study to maintain a high level of professional competence.

All modern productive endeavors, both in developed and developing lands, require access to both past and present concepts and know-how embodied in the printed word, available promptly and economically from libraries and similar focal points. Similarly, sound problem analysis and planning for future improvement requires access to wide-ranging knowledge sources drawn from the past.

Hence, the provision of U.S. books and periodicals and assistance in establishing appropriate reference and documentation centers has been an element in many U.S. assisted developmental projects. In some past projects, library development and the services provided by them have been a most significant project element -- especially for some agricultural, health and industrial programs.

Despite the fundamental importance to the development process of the printed word, organized for ready access, provision for this element in a far-too-substantial percentage of past U.S.-assisted developmental projects has been entirely inadequate. Review of many major projects shows that no provision has been made for the provision of U.S. books or other publications, or for the development of needed reference centers. In other projects, funding provided was far below the true needs of the project. In some extreme cases, where U.S. support was provided in substantial amounts for projects involving specific library development, our project inputs have helped in the erection of the library building; in the provision of shelving and equipment; and in training of the personnel to run the library--but has provided no funding for the purchase of books and periodicals--which transform a building into a library.

In the latter years of the decade of the 1950's and increasingly in the early 1960's, high-level realization of the significant detrimental effects of this shortfall in U.S. Government provisions for the printed word in its overseas programs led to new approaches. The new

policy focused the attention of pertinent Government Agencies upon the "book gap" --the divergence between real needs for book overseas and their availability at a price the people could afford. Under this policy, larger amounts of funding began to be made available both in A.I.D.'s program and that of the U.S. Information Agency; and there were significant increases in the size, variety and imagination applied to use of the printed word as a knowledge-transfer tool.

In the development assistance program, the Latin American region pioneered in this new direction, with a substantial new emphasis and enlarged program funding in 1961 for the provision of U.S. books for technical cooperation programs, accompanied by a quantum increase in the regional funding provided for the Regional Technical Aids Center, which provides Spanish editions of U.S.--source publications.

Somewhat later (in late calendar 1962) the new Administration emphasized the importance of an intensified Government-wide program of action directed to closing the book gap. A.I.D., USIA and the Department of State were the major entities affected by the intensified policy emphasis. Accordingly, the A.I.D. Administrator in September 1962 issued a new "Policy Determination Twelve, Use of Books in the A.I.D. Program", emphasizing the urgency of expanded Agency attention to books as a tool for development.

A new "Government Advisory Committee on International Book Programs" was set up by the Secretary of State in late 1962, to advise the interested Government Agencies, at the policy-making level, of effective approaches to implementing the new policy directives. (At later dates GAC was

expanded to include in its membership representatives of the library, education and audio-visual, multi-media communities).

A variety of new, demonstration book-flow activities, centrally-funded, plus a most significant expansion in country program-funded library development activities characterized the implementation of the new "book gap" policy. Especially in the field of higher education and science-technology, some of the largest library development projects in the history of U.S. development assistance were carried out. Some of these projects involved the expenditure of some hundreds of thousands of U.S. dollars, for training of librarians, the provision of equipment, and stocking of new libraries or enriching the shelves of others with U.S.--source books and professional/technical journals. Outstanding examples which may be cited include the Middle East Technical University and Hacettepe University, in Ankara, Turkey, where large new libraries were set up and stocked as an element of a multi-million dollar education sector loan. Large new libraries were provided for the Korean Institute of Science and Technology; for two Iranian Universities; and for the Indian Institute of Technology (Kanpur). Substantial projects for the expansion and improvement of libraries were funded under education improvement projects in Indonesia; the Philippines; Vietnam; Afghanistan; Ethiopia; Columbia; Brazil; and Chile. Similar--though smaller or less dramatic--library development and book-flow activities became a more significant part of many other A.I.D. projects. ^{3/}

^{3/} See "Manual on Book and Library Activities in Development", a useful reference manual prepared under A.I.D. contract by Stanley A. Barnett and Roland Piggford, June 1969. This manual outlines the role of printed materials in the national growth process; summarizes major book needs in the main LDC areas; summarizes print-media services of major donor entities; and provides quite substantial detail on projects and programs of book use and library development in A.I.D. development assistance.

A significant new project of the Alliance for Progress involved support through the Regional Technical Aids Center and selected country programs for the initiation of a number of University book stores, to make available needed texts at a low, subsidized price. (The reported total of book stores so established has reached 120).

Concurrently, several substantial University textbook rental libraries were established in selected LDC's as one of the demonstration projects of the Central Book Activities program.

The book and library development policy emphasis peaked in January 1967 with the issuance of a new "National Policy Statement on International Book and Library Activities" which up-dated, re-emphasized and strengthened the policy directives of the previous administration; and laid out new implementing directives to various Government Agencies, adding the Smithsonian Institution, the Peace Corps and the Departments of Commerce and Health, Education and Welfare to the three Agencies already involved in "book gap" policy activity. A.I.D., in turn, issued a new Manual Order, up-dating its earlier policy directive -- M.O. 1612.69.3, "The Use of Books in the A.I.D. Program", January 19, 1967.

In line with the policy directive emphasizing the role of libraries and library development in the national growth process, and pursuant to emphasis upon fuller involvement of U.S. private resources to this end, the A.I.D. in June 1967 contracted with the American Library Association to expand and relocate in Washington its small International Relations Office. The work scope called on ALA/IRO to provide A.I.D. with

technical advice, guidance and expert services relating to overseas library development projects supported by the Agency. The initial thinking for this activity had projected a large central fund to support the proposed library development intensification, during an initial period. These plans were later modified; and the contract as signed with the ALA applied central funding only for sharing of the cost of the International Relations Office Washington office. All technical services provided USAID's under the contract were funded under regional or country programs.

Through the years 1967-71, the ALA staff played a highly--useful role in A.I.D.-sponsored overseas library development activities. It handled the placement of IDC librarian-trainees in U.S. facilities; provided expert advice and consultancy services to libraries overseas; and expedited for selected USAID's the procurement of needed U.S. books and journals. In addition, ALA/IRO issued a monthly bulletin reviewing news and developments of pertinence for overseas librarianship; citing case studies in library development; and providing technical detail on specialized aspects of modern librarianship.

C. The present situation--activities and problems.

1. Publications backstopping services:

At present, "technical inquiry" and related publications backstopping services provided A.I.D. by other Government Agencies under PASA arrangements total roughly \$553,000 per year, for 29 organizational entities providing the services. The largest activities are for public health (\$158,000); labor (\$76,000); and agriculture (\$104,000). The

A.I.D. backstopping contract for VITA (for industrial development inquiry replies) is averaging about \$85,000 per year.

These PASA services are accompanied by modest in-house activity by A.I.D. staffs (primarily but not entirely located in the Technical Assistance Bureau) in providing bibliographic advice and (in some instances) the selection of current articles, books, etc., for shipment to AID technicians working overseas. Also, for some sectors (health, agriculture, nutrition, labor, etc.) a stock of past program-generated reports is maintained and dispatched to specific request.

2. Newer knowledge -- transfer services

Newer--and highly significant--activities have been carried out and/or are being structured by A.I.D.'s Office of Population. This Office is providing a variety of services for educational and information-diffusion activity, covering population dynamics; demography; world health and economic development; and the techniques of population control. A very substantial in-house effort is under way for the selection and provision to the field of the best of the current writings in these areas; and a library-reference center is maintained for staff use. By far the most substantial part of the population information--education program activity, however, is carried out under large contracts and 211(d) institution building grants--the largest with the East-West Center; the Population Council; and the University of North Carolina.

The TA Bureau's Office of Research is engaged in an effort to shape an approach which will assure the proper identification, cataloging and

provision for general use of the publications generated under the Agency's large research and 211(d) grant projects. The Office is shaping a standard distribution listing to facilitate the effective use of such materials.

The Utilization Division of the Office of Research is also working with other A.I.D. and multi-lateral Agency officials on long-range plans for the development and (hopefully) U.S. participation in global information-transfer networks.

The Office of Science and Technology is also undertaking promising developmental/demonstration efforts on new approaches to knowledge-transfer, through contracts with the National Technical Information Service and the Bureau of Standards. The NTIS contract will distribute, on a pilot basis, bibliographies and abstracts of U.S. Government research and related reports, targeting key technical and scientific libraries, research institutes, documentation centers and other appropriate developmental institutions. Copies of the publications so cited will be provided upon request. The Bureau of Standards contract is exploring the potential of applying the industrial technology capability of the entity to improve local practices in the establishment and handling of industrial standards; meteorology; quality control; and improved industrial integration and product specialization. A group of 10 to 12 LDC's will be used in the test.

Exploration is also under way under an OST contract with NASA to test the potential for transfer to the LDC's of pertinent new industrial technology applications steering from the U.S. space program. (As is

well known, space research has provided U.S. industry with new technology of tremendous value, including miniaturized electronic components, sophisticated computerized control systems, special ceramics and metals, and others). The exploratory work will target a single country and Institution, the large and apparently quite successful Korean Institute of Science and Technology. The activity will be based almost in its entirety upon knowledge transfer through the medium of the printed word, with only incidental personal contact.

The Office of Science and Technology is also in touch with the U.S. National Academy of Science, UNESCO, UNIDO and the Provisional Secretariat of UNISIST on approaches to future appropriate forms of knowledge transfer, including proposed global compatible--computerized information networks. OST is expecting--almost immediately--the results of an assignment made last year to the National Academy of Sciences, for guidance on needed and appropriate new approaches which A.I.D. should consider for future knowledge transfer through the medium of printed scientific and technical information. (This report, when available, should prove of direct relevance to the study findings outlined in the present document).

The Office of Program and Policy Coordination, which is responsible for A.I.D.'s Reference Center, is working toward the more effective future use of the potential of the publications generated under past A.I.D. programs. As a first step, a contract with the National Technical Information Service will yield a system for computerized cataloging

of the present and future holdings. It will also test field demand for copy of selected publications.

COMMENT: Accelerated and expanded action along this line might well solve one of the more serious of the prevailing problems of A.I.D. in the printed materials use area--the almost-complete failure of the Agency during the past decade to assure systematic, on-going exchange of pertinent program publications and reports.

While each of the above services are by report well-conceived and will probably be well-executed; and while some of the new directions are extremely promising, the Agency is nevertheless falling completely short of current utilization of the full potential of the printed word in its programs. There is little or no official coordination between the several individuals and units involved in providing service backstopping for field programs. There is no meaningful activity to assure effective interchange and use of materials generated in one locality for possible use in others. There appears to be little current activity under way (with the notable exception of the population program) to strengthen or to develop the essential IDC capability to handle effectively the receipt, adaptation and diffusion of appropriate printed materials. There is no focal point in the Agency to maintain current cognizance of developments in the complex area of printed materials assembly, flow and use, nor to represent the Agency in this sphere in needed contacts with other entities, public or private.

3. Services for libraries and IDC reference--documentation centers.

During the past two fiscal years, as the Agency's total program

funding has been curtailed and its activities increasingly concentrated on a limited number of "highest priority" projects, country program funding for library development and for the flow of U.S. technical and scientific journals has largely dried up, with a few notable exceptions (such as the Vietnamese secondary and higher education program and the Korean Development Institute project, each of which contain a major library development provision). This decline has limited the role ALA's International Relations Office could play in facilitating conventional overseas library development.

Also, as one phase of the Technical Assistance Bureau's elimination of "field support" activities outside the context of defined "priority problem areas", the Agency's support for ALA's International Relations Office is being terminated March 31, 1972. It appears likely that the termination of the U.S. Government support which motivated an expansion of this entity and its relocation in Washington, D.C. will lead directly to a sharp reduction or a termination of the activity. Hence most of the overseas technical services of the type which ILO/IRO has provided A.I.D. under contractual support would no longer be available.

It may well prove that the termination of the Agency's relationship with the American Library community's focal point may be ill-advised and untimely, in context of the present situation facing the Agency as it makes a planned transition to the developmental activities of the 1970's. A.I.D. should re-study, as a matter of some urgency, the potential of the U.S. library community and ALA's International

Relations Office in the full context of proposed new approaches. This should include the possible establishment of regional and global knowledge-transfer networks; essential increases in the in-country Institutional capability for handling an enlarged flow of knowledge based on sophisticated technology; and expanded reliance of the U.S. on intermediaries and multi-lateral organizations for its program implementation--with the U.S. expert overseas very sharply reduced in numbers. By all reports, the American Library community, its Association, and some of its specialized spin-offs (such as the Council on Library Resources which deals with the more sophisticated computerized techniques for classification, storage and retrieval of materials) unquestionably constitute the largest aggregation of knowledge and capability in the U.S. regarding advanced techniques for storage, rapid retrieval and effective diffusion of knowledge embodied in the printed work.

As noted elsewhere in this document, the LDC libraries and community documentation centers (present or future) must function as the heart for any expanded programs utilizing non-formal approaches to education, targeting both adults and the nation's youth outside the formal educational system. Organized collections of printed materials---regardless of what they may be called--are an essential element in the process of gathering reference materials for use in shaping printed software for educational systems based on educational technology.

The skills and proved capability of the U.S. library community should be available to A.I.D. for effective involvement in such future

activities as they evolve. Without the focal point of an A.I.D.-assisted International Relations Office, however, it will be^a difficult--if not impossible--task to identify and recruit the best available U.S. professionals in the library community, when needed.

D. Specialized programs involving the printed word, supported directly or indirectly under U.S. development assistance programs.

1. Special Services Staff, TA Bureau

The Technical Assistance Bureau's Special Services Staff is presently exploring a variety of means whereby the U.S. Government may broaden and make more effective its knowledge-transfer activities provided on a self-financed basis to developing nations not included under A.I.D.'s regular development assistance program. To date, self-financed technical services have been limited to the assignment of U.S. experts for specialized work in the target nation and the training of that country's citizens in U.S. Institutions.

Such activities, while of significant value, do not have a large multiplier effect nor can the results normally be of continuing use over a period of years. Accordingly, recent discussions have indicated the usefulness of exploring the potential of applying the printed word in the self-financed aid program. In theory, an appropriate continuing exchange of concepts and know-how through services based on the printed word would yield substantial benefits at extremely low costs; could potentially target large audiences in the recipient country; and could include scientific and technological breakthroughs, modern thinking and concepts on business and development administration, or other aspects as agreed.

However, while the exchange of experts for consultation and for training is a comparatively straight-forward matter, the assembly and diffusion of appropriate technical information materials requires the current cognizance of U.S. resources and sources for expertise and an organized way to tap them. Of even more significance, the transfer of knowledge is useless unless there exists in the relevant Host Country action Institutions specialized competence and facilities to handle in-flowing printed resource materials; to process them appropriately; and to diffuse them in an effective manner within the country. As noted elsewhere, the rapid technological advances in information handling make this an increasingly-complex and technically-demanding operation.

Accordingly, the Special Services Staff, with help from the Office of Education and Human Resources, is attempting to identify the most effective way to assure the availability of needed U.S. resources. According to present thinking, this should be accompanied by exploratory work, in one or more identified key country situations, on the financial and technical requirements for building essential local capability to handle technical information services and programs.

NOTE: This exploration--and possible reimbursable future printed materials diffusion programs--might be undertaken on a modest scale even with the existing Agency low-profile approach to the assembly and program use of printed materials for knowledge-transfer. However, to achieve the true potential of printed media in reimbursable-service activities, actions suggested elsewhere in this document would appear to

be pre-requisites especially accelerated identification and exchange of useful materials now available.

Assuming successful foundation laying and testing, information transfer to countries not presently involved in U.S. development assistance programs in theory should provide a useful bridge for continuing exchanges between the U.S. and the target country, to their mutual benefit. Effective in-country diffusion of knowledge in printed form could not only facilitate accelerated applied research and scientific/technological development, but might also pave the way for introduction of new or enriched curricula in the country's Institutions of higher learning in fields such as science, engineering, technology and selected professions.

The development of increased in-country institutional capability for handling printed materials through the application of advanced technologies could also go far toward assuring that such countries would be able to capitalize with some effectiveness upon the tremendous knowledge flows which are contemplated under future global information networks based on compatible computerized information storage and transfer.

2. Overseas Technical Assistance Activities of Voluntary Agencies

One of the more significant channels for transfer overseas of the wealth of knowledge, procedures, experience and techniques applied in the U.S. which are of relevance in IDC situations is the work of the many private Voluntary Agencies providing technical assistance overseas. The Agency for International Development and its predecessor Agencies recognized the tremendous mileage per dollar which attends

support for the efforts of these Agencies. Hence, for more than a decade ICA and AID have provided a modest amount of funding to and have encouraged the technical assistance efforts of the Voluntary Agencies (this is separate from and in addition to the large funding support for the humanitarian and disaster-relief efforts of a number of the Voluntary Agencies). Support had been channeled through the American Council for Voluntary Agencies in Technical Assistance Overseas. A specific element of A.I.D. support has been for the work of the Council's "Technical Assistance Information Clearinghouse", which provides an extremely useful current reporting service on the projects carried out by the many voluntary agencies engaged in overseas technical assistance activities.

The services of the Voluntary Agencies which are based on or utilize the printed word as a program tool range from the collection and shipment overseas of donated used books to the preparation and use of printed training materials in village classrooms in remote areas of the Andes or South Asia.

An effort is presently under way to arrange for an organized appraisal of the full range and nature of such activities, which could be made available to A.I.D. and other donor entities for overseas technical assistance.

3. O.A.S. -- North-South Knowledge transfer program

Under a special U.S.-donated fund for Education, Science and Technology, the Organization of American States is shaping and will execute a broad-ranging program for continuing transfer of concepts,

knowledge and technique between the U.S. and Latin America. This long-term program includes the provision of a total of \$25,000,000, of which \$15,000,000 is earmarked for the area of science and technology, and \$10,000,000 for education and cultural materials.

The science and technology phase emphasizes post-graduate training of Latin Americans in selected U.S. Universities; will include some exchange of expert services in specific countries in Latin America; and will involve a substantial continuing flow of printed materials as a knowledge-transfer tool.

The educational and cultural phase has concentrated to date on educational planning and administration; on curriculum reform; on the best approaches to educational technology; and on improved technical/vocational education. The use of the printed word is a significant element in this aspect, primarily for library development and shelf enrichment--estimated at roughly 10 percent of the funding expended to date for these activities.

4. Asia Foundation's Work with the Printed Word

The Asia Foundation, a private, nonprofit entity incorporated in California, has since its founding in 1954 carried forward an effective program for the development of needed human resources in Asia and for the strengthening of private and public institutions which contribute to Asian economic growth.

In its activities, the Asia Foundation trains Asian nationals in the U.S. and in third countries; provides in-country expert services,

where appropriate; and carries forward a substantial program for overseas placement of donated U.S. books; some new books; appropriate journals and periodicals; multiple copies of textbooks for school room and University use; and significant activities for the strengthening of community, village, school, technical and special libraries.

Under its "Books for Asian Students" program, which is the key element in its printed materials activity, the Asia Foundation during the past 15 years has collected and distributed more than 10 million books and professional journals (in English) to roughly 20,000 schools and other Institutions in Asia. Books are placed only where there is advance assurance of effective use of them.

The Asia Foundation, which has received Government support through the A.I.D. program for the past several years, plays an extremely significant role in strengthening the library profession in Asia; in stimulating the establishment of associations of libraries and other professional organizations in key Asian nations; and in helping to bring together in a meaningful way leaders of the Asian educational, scientific, technical and cultural communities with their counterparts in U.S. associations, organizations, and individual institutions and firms.

In its training activities--including work in strengthening Asian publishing and library facilities--the Foundation representatives have worked closely and effectively with appropriate U.S. Government organizations for program coordination, where feasible. 5/

5/ The January 30, 1971 issue of "Libraries in International Development", ALA International Relations Office, carries a useful article on the work of the Asia Foundation.

5. USIA's Programs relevant to the Printed Word in overseas development

While no properly classifiable under this sub-category "...specialized programs supported...under U.S. Development assistance programs", there are a number of the book translation, printing and publishing programs carried out by the U.S. Information Agency which have direct significance for the development assistance activities in the IDC's. To the extent feasible, USIA coordinates its activities closely with those of A.I.D., at both the headquarters and field levels. (In 1961, a formal inter-agency agreement on the book activity responsibilities and fields of interest of the two Agencies was spelled out and signed for the Latin American area. The parameters set in this agreement have been followed in general terms in all other areas as well).

The largest activity in which USIA and A.I.D. combine their efforts in the book field is the Indian textbook reprint program, carried out largely with PL 480 funding provided jointly by A.I.D. and USIA. For this program, A.I.D. supports science and technology texts, while USIA supports titles in the social sciences and humanities. ~~Under~~ The program as now funded averages the rupee equivalent of \$2,000,000 per year, plus some essential USIA dollar funding for imported printing ingredients, etc.

About 300 titles per year can be published--but this is still far short of the demand (at the year's end, about 1,000 titles were approved for publishing but held up because of insufficient funding).

USIA works very closely with AID's Regional Technical Aids Center in Mexico City and in Buenos Aires (for Spanish-language books and

non-commercial publications). The USIA program generates some 100 to 120 titles each year. Copies of materials produced by RIAC and by USIS/Mexico City and Buenos Aires are regularly exchanged, as program needs dictate. In general, USIA sponsors the humanities and social sciences (as in the Indian program) while RIAC sponsors USAID-endorsed development-related texts and technical works. The two Agencies work together effectively on region-wide efforts for improving the distribution capability of private-sector enterprises in the area.

USIA also provides Portuguese translations in Brazil--where A.I.D. has an on-going translation program; but coordination and exchange of materials is reportedly less complete and consistent than in the Spanish-language programs.

USIA's low-cost book program covers many other languages and countries, some of which are of definite significance for A.I.D. programs--especially French (for Africa); Arabic (published in Beirut); Vietnamese; Thai; Turkish; and Bengali.

CHAPTER II

GENERATION AND USE OF PRINTED MATERIALS IN NATIONAL DEVELOPMENT PROGRAMS: AND SHAPING OF LOCAL CAPABILITY TO RECEIVE

A. The Printed Word in Industry and other LDC Productive Endeavors.

The printed word has been a recognized element in most developmental projects assisted by the U.S. Government, for all program sectors. The nature of the local development and use of such materials in the established educational system, however, has been substantially different from the applications in Developmental Institutions servicing other sectors of the economy.

In most bi-lateral programs, such as industry, agriculture, public health, transportation, etc., the Host Country Institutions established to carry forward developmental programs characteristically draw upon U.S. and other out-of-country printed materials and use them in adapted, translated or other appropriate form as tools to facilitate the adoption of new ideas and the acceptance of new ways of doing things. In addition, a substantial amount of new material is regularly produced in such Institutions, to complement that coming from abroad.

In most such Institutions, there is a focal point for shaping the printed materials element as a channel for knowledge diffusion. In different entities, these foci may be known as technical information centers, documentation centers or technical libraries. By and large, the services provided by such centers are likely to include the loan or gift of imported and locally-generated publications—such as books; journals; special reports, and the like. In almost all instances, the materials are used as a source for assembly of information to answer significant

individual technical inquiries. In other instances, the assembled materials are stratified and utilized periodically as a basis for circulating or traveling libraries, reaching clientele who cannot visit the parent Institution.

Publications from the reference shelves are regularly drawn upon as a basis for developing periodical publications such as newsletters; technical notes; managerial, technical or specialized digest and/or abstracts services, etc. Available materials are also used as the base for the preparation of new monographic materials, special articles and the like.

Frequently, technical information centers regularly develop and disseminate abstracts, classified catalogs and similar guides to current managerial, technological, scientific, professional and development administration writings--and offer to provide at cost reprints of desired writings. From time to time, also such centers provide regular or spot bibliographic service, to request.

An element of particular importance to the functioning of most such Developmental Institutions is the action by the information service to assemble, review, adapt, abridge, translate and publish specialized training materials (course outlines, reference materials, leaders' guides, etc.) for on-going seminars, symposia and short- or medium-term knowledge-transfer activities. ^{1/}

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1/ See attachment 1, "Role of Technical Information in development-assistance programs"

In addition to the information centers of major developmental Institutions, there are a growing number of independent public, private or semi-autonomous institutions whose activities are based primarily or entirely upon the effective storage, retrieval and use of needed information in printed form, and the development of useful derived publications. Included in the roster of such Institutions are technical documentation centers; Institutes of Science and Technology; Research Institutes; and entities sponsored or operated by Universities.

To a marked degree, institutions such as the above were developed and operated for many years with strong, continuing backstopping and technical support from the U.S. technical cooperation program and from UNESCO. The utilization of printed materials from overseas--and the development of indigenous publications particularly relevant for in-country diffusion of new concepts and techniques remains an important element in most LDC's.

The level of U.S. printed materials assistance for activities of this type declined sharply after 1963--and almost disappeared for some sectors. (See Chapter I). Concurrently, the continuing provision of U.S. expert and advisory services to many of the LDC centers on the most effective techniques and approaches for the generation of "communications media" and the translation, adaptation, abridgement, printing, diffusion and use training for printed and audio-visual resource materials was also curtailed sharply for many sector projects.

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As a consequence, the LDC developmental Institutions were forced to look increasingly to individual European Governments and to other sources outside the U.S. for the backstopping of such technical information services as they continued to provide--with adverse effects upon their capability for knowledge diffusion through the printed word and visuals.

Of possibly more long-term significance from the viewpoint of both the LDC and the U.S., many of these Institutions have been largely cut off from the mainstream of information on current U.S. technical, scientific and managerial breakthroughs and developments.

At present, in some LDC's a few of the developmental Institutions operate well-organized and capable technical information centers. Also, a reasonable number of the independent documentation centers, technical libraries, or science and research Institutes are extremely effective. (There are outstanding examples in India; Korea; Taiwan; Brazil; Iran; and Turkey.) In all too many instances, however, existing technical information resource centers are entirely inadequate to utilize effectively the potential of the printed word under existing limited programs. Prevalant limitations include inadequate physical facilities; insufficient financial resources; limited reference collections and little or no current acquisitions; poor practices in using efficiently even the limited materials at hand as a basis for knowledge diffusion; little or no contact with their counterpart Institutions in other Nations; inadequate internal communications with other parts of the Institution as to the needs for and/or opportunities to use effectively resource materials in

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on-going projects; limited efforts to generate and distribute useful publications; and a staff with little or no understanding of the true potential of printed materials as a knowledge-transfer element in the developmental program.

The availability of tremendous and growing amounts of needed and useful resource materials in printed form, plus the dramatic breakthroughs in the techniques for storage and retrieval of such materials have reduced greatly both the unit cost and the handling limitations to knowledge diffusion through the printed word. Concurrently, the need for modern concepts and know-how in scientific, technological and managerial fields has expanded rapidly in most of the LDC's during the past decade, due to the rapid growth of industry and other productive enterprise, rapid urban development, and exploding population pressures.

In this situation, shortfalls in the capability of LDC Institutions charged with responsibility for handling technical information for development has become a matter for increasing high-level concern, both within the LDC's themselves and in multi-lateral developmental agency circles. One of the primary problems identified by the planning group working on "UNISEST" (the UNESCO--National Academy of Science-sponsored computerized science-technology information network) is the prevailing shortfall program which is working toward a global in LDC Institutional capability to participate effectively in any such networks--which would inevitably tend to increase yet further the growing disparity between the LDC's and the developed nations.

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Hence, as part of the Agency's projected new and innovative efforts to help the LDC's conduct with improved efficiency their own developmental programs—and with a higher cost/benefit ratio—A.I.D. should (as proposed by Administrator Hannah in his January 24 statement) devote priority attention to planned bi-lateral action to strengthen the resources and capability of the technical information resource centers for key developmental Institutions in targeted LDC's, to enable them to capitalize more fully now on available resources, as well as the greatly-enlarged flow which will be available in the future. Further, A.I.D. should collaborate with and support pertinent action by multi-lateral entities, targeting LDC's not now assisted by the U.S.

There are a substantial number and variety of capable U.S. entities which can serve as effective intermediary Institutions, including the American library community; U.S. Universities; the U.S. publishing, multi-media and communications industries; the computer and computer-service firms; and many others.

In the interest of the U.S. itself, it would appear likely that A.I.D. should directly finance U.S. intermediaries for work overseas along these lines for at least a limited initial period, at the same time that it is coordinating fully with UNESCO, UNIDO, the OAS, the OECD and the UNISTAT Secretariat temporarily posted in UNESCO headquarters on longer-range planning/action coordination.

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3. Printed Materials in IIE Educational Improvement Programs.

As noted above, the role of the printed word in the education sector is entirely different than that in most of the other developmental activities. By the very nature of the modern educational process, printed materials constitute a fundamental element, without which a modern system could not function. Printed materials in substantial variety are required, including: texts; written curriculum guides; course outlines; reference works--such as dictionaries, encyclopedias, maps, atlases and technical manuals; workbooks and notebooks; teachers' guides; testing materials; and organized collections of books, journals, etc., in the form of school or classroom libraries.

Some of the newer educational systems based on educational technology require even larger supplies of printed materials (software) but of a different nature and packaged in a different manner than in the more formal--and some non-formal--conventional approaches. Needed software materials include but are not limited to scripts and/or lecture--discussion outlines for the "teachers" or knowledge-projectors; informally-printed (generally unbound) materials for learner study and reference use in conjunction with the knowledge transferred through the technology hardware; supplemental reading materials, as assigned or recommended for individual learning enrichment; testing materials; and others.

In most cases, U.S. assistance for the local production of instructional materials has been shaped in the context of broader efforts

for educational improvement, including school building, modernizing of curricula, training of teachers and the introduction of new pedagogical techniques. In a few instances, a separate project has been carried out for the development of an instructional materials center or for the development and production of textbooks and related instructional materials. In almost all such cases, however, these projects followed or were shaped in context of other educational-improvement activities.

Instructional materials in LDC's have most frequently involved the writing, printing and distribution of materials in the indigenous languages. In a few instances, however, especially for activities targeting higher education levels or serving a professional market, successful programs have provided low-cost English-language reprints and/or adaptations of U.S. texts (Philippines and India are examples). In other cases, instructional materials for use in the LDC educational system have been generated through direct translation of appropriate U.S. intellectual properties, in country programs and in regional projects.

In many of the LDC's where U.S. support has facilitated the provision of elementary school textbooks, the programs marked the first time texts had been available for and had been used in the school classrooms, earlier teaching having been by lecture--rote learning approaches. Insofar as information is available, all textbook projects of this type were shaped in context of modernized curricula and teaching techniques.

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Since elementary textbook projects involve much larger numbers of copies than those targeting the higher educational levels, they have been less numerous than other projects; and have tended to be limited to situations of special funding circumstances or where education sector loans were available. (Brazil; Colombia; Chile; Peru; Vietnam; Laos, etc).

A relatively-recent development in U.S.-assisted instructional materials programs has been the occasional sub-regional textbook writing and/or printing projects, providing materials in languages suited to multi-country use or in a prototype form allowing for facile local translation and production. Included are (or were) Spanish-language texts for elementary grades 1-6, inclusive (Central America); legal texts (ODECA/ROCAP); and elementary math and primary school science (sub-Saharan Africa).

In considering future educational programming and/or the analysis of capability to print, manufacture and distribute low-cost educational materials, thoughtful consideration should be given to the feasibility of extending to new areas regional and sub-regional approaches—once it is established that the product would be both technically and culturally acceptable for multi-country use. There is no question that lower unit costs and substantially higher cost/benefit ratios can attend the longer print runs achievable with regional/sub-regional approaches. Also, such operations might in some circumstances be the only truly-effective way of assuring the availability of quality low-cost texts in

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some of the smaller LDCs, where the development of indigenous capability is not economically viable. This would seem to apply in Francophone Africa; in southern Africa; and perhaps in Southeast Asia.

Acknowledging the number of U.S.-assisted LDC educational development programs in which an effective element is instructional materials, even a cursory analysis of the entire education sector program reveals that the printed materials element has too-frequently been accorded a substantially-lower priority than other elements, with the funding provided quite inadequate to realize the full potential of an ample supply of modern instructional materials. In many instances, U.S. assistance efforts have concentrated almost entirely on the provision of physical facilities and/or teacher training, with no text element. In other cases, related actions have been taken to modernize concepts and approaches, but no assurance made in program planning that the instructional materials required to translate concepts into actual teaching would be available. (This is similar to some projects noted in other sectoral activity where the U.S. has helped construct a library building, trained librarians, and provided shelving and equipment, but no books!)

In other instances, A.I.D. is presently expending substantial sums in assisting LDC's to develop new text manuscripts based on thoroughly modern curricula and teaching approaches, but has taken no action whatsoever to assure itself that the manuscripts would be actually produced at a reasonable unit cost and distributed effectively. In a fortunately-

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(for example, Indonesia, Turkey)

limited number of instances, the U.S. has funded the training of textbook writers and/or the actual production of instructional materials, without verifying in advance that the skills so developed and the manuscripts so generated would ever be produced and used in the schools.

Similarly, while all of the pertinent facts are not in hand, it appears possible that the Agency, in providing assistance for future LDC applications of multi-media and educational technology systems, may be concentrating too single-mindedly upon the hardware and the systems approaches. For any educational technology or multi-media system to function, it appears certain that a pre-requisite is a substantial flow of quality instructional materials (software) in the form of rough-printed or in-folio text materials; scripts; teachers' guides, program outlines, and even prompt sheets; follow-up and self-study materials; testing materials, etc. In order to reflect adequately the prescribed curricula concepts and the instructional approaches envisaged, the preparation of this material with sufficiently high quality appears almost certain to be technically more demanding and to require substantially more time than does the assembly, installation and testing of the system hardware--whether radio, television, programmed instructional devices, or whatever.

In this context, the Agency may wish to consider ways of assuring in its planning to meet the demands of the future that a first (rather than a last) look be taken at the need for and local capability to produce printed materials software for both formal and non-formal approaches of the future.

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In some country programs and in some sub-regional ones as well, little or no attention has been devoted to a professional, in-depth appraisal of the real capability to produce the quality educational materials which will be needed for the proper functioning of an expanded and improved educational system. While in a few country programs action has been taken to develop a modest-sized facility within the Ministry of Education or elsewhere in the Government, only in Brazil, Mexico and Nigeria have I noted programs specifically directed to developing a strong and economically-viable local private educational publishing industry. (A modest amount of training of book industry personnel was conducted in the mid-1960's with central funding. The results, while well received, were most inadequate to make a significant impact on the problem.)

In all cases where the Agency is now involved or will become involved in large programs for the generation of instructional materials for conventional educational systems or for the application of new systems based on multi-media, non-formal or "technology" approaches, professional, in-depth appraisals should be made at the earliest possible date to identify the characteristics of the existing indigenous human and physical resources. Facts should be set forth as to both the size and quality characteristics, in terms of textbook writing, editing, graphic arts and layout, printing, book manufacturing, storage, and distribution; and upon the entirely-different capabilities for producing the softwares required for non-formal and educational technology approaches.

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Note: The series of 1964-67 "Developmental book industry reports" covering a number of countries might prove useful starting points. However, the material is not up-to-date; and the approach was not the same as that required for identifying needs and capability for modern systems software output.

Based on the results of such analyses, coupled with the assumptions as to instructional materials needs for proposed installations, action should be taken to assure that appropriate A.I.D. educational-assistance projects include provisions for support actions to assure the development of needed capability--well in advance of the installation of new hardware systems or the writing of manuscript for new instructional materials.

Such action appears fully in line with new Agency emphasis upon broadening the role of the private sector in LDC development; and the U.S. educational publishing industry undoubtedly could and should be involved in the action, with A.I.D. support.

New or modernized LDC educational publishing capability so generated could serve not only the educational system, but could make a direct contribution to the materials requirements for knowledge-transfer activity in other sectors.

Application of innovative approaches

It might well be possible to achieve through more imaginative and flexible approaches a larger total educational program, targeting in

a more relevant manner the real needs of the IDC peoples, with the same or even slightly-reduced demands on the nation's resources. For this to be accomplished, new techniques and new knowledge-transfer systems would necessarily be preceded and accompanied by entirely new and imaginative efforts to assure the availability of the requisite instructional materials, based on a variety of proved media, including but not limited to printed software.

As part of the Agency's planned increasing attention to actions to help IDC's improve the well-being of their people, present exploration and research might well be expanded, and accompanied by a new range of pragmatic, pilot-scale field application and testing of already-available materials used as prototypes and adapted to the needs of the particular country situation. In such activities, useful comparisons could likely be derived as to the actual cost/benefit ratios of expanded newer multi-media approaches in relation to existing conventional formal systems.

Among the approaches, techniques and instructional materials tools which are already known and tested at least to a limited degree are the following:

- *Elementary school or classroom "learning resource centers" using a variety of low-cost multi-media learning tools;
- *Introduction of "village learning centers" or rural "informal classrooms", relying primarily upon radio broadcasts through

portable transistorized receivers, backed up with an appropriate variety of printed (and perhaps some inexpensive audio-visual) materials for reference, further individual study, testing, and problem-solving;

*Introduction, where sufficient existing broadcasting hardware is already in place as a basis for a reasonable cost/benefit ratio, of educational television (either as the primary or a supporting knowledge-transfer tool) used either in school classrooms or in a non-formal environment, for training and knowledge-transfer to out-of-school youth and adults as well as youth in school.

*Continuing service by appropriate local documentation centers of "libraries" based on assemblages of appropriate knowledge-resource materials available for ready retrieval, and handled by a skilled knowledge-transfer specialist. Such centers can be and are being used to provide a non-formal but carefully-organized flow of required education/training for designated subject areas. Such resource centers could likely be pegged with relative facility into national or even international organized knowledge-transfer systems, providing a relatively-inexpensive flow of the latest and best for local screening, adaptation and use. Such centers have a high potential for servicing more than one locality, through the "mobile classroom" or "traveling library" approach.

*Introduction and testing of the "Open University" concept at both secondary-school and collegiate levels, targeting both those not

in the formal school system and those requiring supplemental learning. (These systems, of course, are feasible only where requisite mass-communications hardware is already in place.) Such hardware systems need only be backed up by a planned flow of appropriately-selected and developed software--primarily printed--accompanied by appropriate correspondence or person-to-person contact orientation, current guidance and achievement testing, for course credit or for other appropriate recognition.

*Provision of educational/training services via the correspondence school approach, for many disciplines and skills. A wealth of material already exists, some of which not only can but has been adapted, translated, abridged, etc., and applied in many of the LDC's.

Application of instructional materials in non-formal, out-of-school approaches

In almost every LDC, some activity is being carried forward in the sphere of non-formal education/training in practical crafts, skills, and techniques. However, in almost all the LDC's, it is generally agreed that the scope and size of the existing education/training services fall far short of providing the knowledge and skills required to handle both present and future economic development requirements. In addition--and perhaps equally important--a large percentage of the adults in the LDC's (especially in rural areas) have little real knowledge of the world in which they live or the complex requirements of LDC development in the twentieth century.

Many educators and other development officials are agreed that an extremely high cost/benefit ratio would attend broadened efforts in the non-formal area. However, they have been hampered to date by the lack of instructional materials to apply and of the availability of enough people with the training needed to utilize them in action programs.

As noted below, a tremendous amount and variety of useful materials already exists which with appropriate action could be made available in a form suited to local use. Examples of materials readily available in A.I.D.'s own files, and from other easily-tapped U.S. sources, include: correspondence courses offered by a number of U.S. firms; technical bulletins, training course outlines, leaders' guides, audio-visual support materials and guides to supplemental self-study available from many leading U.S. business firms; specialized training materials; and over 200 manuals, course outlines and leaders' guides selected from many sources under TCA's Industrial Technical Aids Program. In addition, there are a variety of commercially-published texts and supportive materials for skills, crafts, vocational and other topics—ranging to business management materials.

Examples of the non-formal training/education situations where expanded activity might well prove useful in many LDC's—with appropriate A.I.D. support—include:

*Organized local training courses (short and medium-term) and seminars conducted by developmental institutions servicing the major sectors of the economy—such as Development banks and other financial

institutions; Industry Institutes; Productivity Centers; Industrial Development organizations; Manpower Institutes; Management Consulting Associations or Institutes; agricultural extension centers; agricultural cooperatives; health centers; industry and trade associations; various Government Ministries, etc.

*In-factory training of personnel in crafts, techniques, concepts, procedures, job standards, supervisory and managerial skills, etc.

*Training and educational activities by specialized organizations in the LDC's (other than Government or private developmental entities per se) such as youth groups; bi-national centers and other cross-cultural exchange institutions; clubs of returned participants; religious organizations; and many other community or civic entities.

Proved training materials exist for almost any type of non-formal educational or training program such groups might wish to conduct.

(Professional advice and guidance in selection and adaptation would of course be required in most cases).

Inadequate existence of proved instructional materials

Over the years, many LDC educational development programs (regional, sub-regional and in-country) have produced a sizeable number of excellent instructional materials shaped to modern curricula; and have proved their merit through actual application. Included have been texts; teachers' guides; reference and supplemental reading materials; testing materials; and some audio-visuals. In addition to items structured for the formal LDC educational system, large amounts of materials of proved usefulness have been developed and applied in non-formal short and medium-term educational and/or

specialized training courses. These programs have targeted directly the knowledge needs of adults and out-of-school youth; and have provided specific skills required for their more effective involvement in the national growth process.

Unfortunately, with one or two notable exceptions, (Central America; Africa) to date there has been little or no organized effort to capitalize upon the potential of these materials for use in classrooms in countries other than the originator. While language and socio-cultural differences certainly present some difficulties for the use of materials originating out-of-country, some successful experiences have demonstrated that such problems are solvable; and the translation/adaptation is both feasible and economical.

In addition to instructional materials for formal education systems produced in the LDC's themselves, the U.S. and other developed nations have generated and tested a tremendous amount and variety of educational materials. Especially during the past five years, the U.S. educational publishing industry has developed entirely new and innovative instructional materials for use in multi-media approaches to modern classroom education-- materials which emphasize student motivation; knowledge enrichment; individualized research; and individual-path learning techniques. The overseas potential for these innovative materials has not yet been appraised or thoroughly tested. However, efforts by individual book firms and some successful spot applications overseas indicate the likelihood that

some of them have significant potential for improving learning quality and pace in the LDC's, given careful, professional screening, selection and adaptation to extent in-country conditions.

Of possibly even more immediate significance in proposed innovative approaches for non-formal education in the LDC's is the availability of a vast and diversified store of proved instructional materials applied in current and past training and non-formal continuing education activities in the U.S. and in some other developed countries—by the private business community; by educational publishers; by specialized training organizations and industrial consultants; and by Federal and State Governments. The usefulness of these training materials has been proved in organized human resources development and skills-training courses; in correspondence school operations; through in-plant training programs; through courses conducted as a public service in radio and other mass-communications media; and in other specialized approaches. Material of this nature is available for almost all basic aspects of human endeavor, including but not limited to technical, managerial, vocational and professional areas. They relate to disciplines as varied as industrial productivity and industrial technology; management and public administration; agriculture; health and sanitation; community development and civic action; labor; housing and construction; communications; transportation; and handicrafts and homemakers' skills.

A substantial amount of such non-formal material has been tested and used successfully (with appropriate adaptations) in the LDC's. Many bilateral country programs of vocational/technical education have drawn—through contract—upon U.S. firms which have used such materials

in local training programs and have trained host country counterparts how to shape similar materials. During the years prior to 1964, ICA and predecessor Agencies made a continuing organized effort to screen and assemble some of the best of such material, and disseminated it overseas for adaptive use in developmental programs-with substantial acceptance and application.

During the recent past, however, there is no organized effort, in AID/W or in the country programs, to assemble, evaluate, catalog and store for future exchange and use materials of this nature.

Corrective action suggested

In view of the Agency policy emphasizing new approaches in LDC educational development, with non-formal approaches as appropriate and higher cost/benefit ratios, to target more people with relevant education and training within limited financial resources, careful, in-depth appraisal should be made of the potential of existing instructional materials for both formal and non-formal educational application overseas.

Appropriate actions would seem to include:

1. Undertake a systematic effort to evoke, assemble and appraise available knowledge-transfer materials developed in the LDC's; in the U.S. and other developed nations; and by appropriate multi-lateral¹ or regional entities, such as ILO; UNIDO; UNESCO; OECD; APO; WHO; OAS; and FAO.
2. Set up an appropriate system (computer-based or micro-storage) to organize, catalog and store for ready retrieval materials

determined to be of potential relevance for overseas applications. (As a step in such action, arrange for the services of specialized professionals to screen assembled materials in their area of competence).

3. Provide a series of current bibliographic citation and sampling of the most promising materials, directed to all A.I.D.-assisted and self-financed IDJ and developing-country programs—to assure current cognizance of materials resources available.
4. Upon request, provide photoprints or other appropriate reproductions of specified segments or entire documents desired for program use in targeted countries. (Note: depending upon Agency policy decisions, this service could be handled either on a centrally-funded or a self-financed basis, with copy provided on an actual cost basis).
5. Upon request, provide technical advice and service to A.I.D. Bureau and to USAID/Host Country officials involved in the planning and execution of appropriate educational and other knowledge-transfer projects. Such advice might relate not only to the materials available and how to get them, but also on ways in which they have been used in other situations.

Make broader use of private-sector capabilities in future program action

The Administrator's memorandum of January 24 and other recent policy statements place high priority upon a broadened role for the private sector in the overseas development process. In the sphere of print media,

the relevant U.S. industries (educational publishing; multi-media learning systems; printing and book manufacture, etc.) possess a wealth of highly-relevant experience and technical/managerial/entrepreneurial expertise. In past years, however, A.T.D. and predecessor Agencies have drawn upon the potential of this private-industry capability on an extremely-limited and spasmodic basis. ^{2/}

In the present context of innovative approaches to overseas education, coupled with the known ability of the U.S. industry and its stated interest in working with the Government for overseas development, it appears quite appropriate to suggest that a planned effort be made to shape a more complete engagement of the industry's resources. The industry possesses a fond of experience and knowledge in the development and use of instructional materials which should, with proper evocation and guidance, be of great value in LDC educational programs. In addition, both educational publishing and multi-media educational houses have both a direct stake and a stated interest in the development and/or improvement of local capability in these spheres in the LDC's. In fact, some of the leading firms have already involved themselves, on their own initiative, in joint venture or similar arrangements, or are now exploring them.

^{2/} Country programs which have drawn directly upon private-company expertise have included the Nigerian, Philippine and Brazilian book development projects. Under the earlier demonstration Central Book Fund projects, a number of LDC book-industry personnel were trained in the U.S.; and some U.S. expertise was used in spot overseas tasks, including survey.

It would appear that the U.S. industrial community could and should be called upon to provide spot services, under appropriate contractual arrangements, for activities such as the following:

1. Review with the U.S. Government and University Contractor personnel of the range of multi-media and conventional instructional materials available from the industry, in perspective of their potential for overseas application. Possible collaboration in shaping adaptations.
2. Involvement in the proposed in-depth appraisals in selected LDC's of the potential of the local instructional materials generation, publishing, manufacturing, storage and distribution industries, in relation to projected requirements for both formal and non-formal systems--specifically including software for technology installations.
3. Involvement in such action programs as may be shaped, under A.I.D. and/or other-donor auspices, for the development of needed in-country capability in the LDC's.
4. Provision of technical services relating to the development and use of instructional materials, both for conventional and for multi-media systems. (This could involve such sub-disciplines as textbook writing; editing, publishing, printing and marketing; the development and use of classroom resource centers; the process of translating educational concepts and stated curricula into actual textbooks and other instructional media--and many others.)

5. As appropriate, the training of textbook writers and personnel from LDC publishing/production industries in the publishers' U.S. facilities; and/or engagement of individual publishing-industry officials and technicians in overseas in-country or sub-regional knowledge-transfer projects.

Appropriate intermediary institutions with whom A.I.D. and/or LDC's could contract for any such activities are already in existence; and are already in general touch with the Government. Included in this group fall the American Association of Publishers (and its International Trade Committee); the American Library Association; the Book Manufacturers' Institute; the American Booksellers' Association; the National Book Committee; the Council on Library Resources; and the advisory group--the Government Advisory Committee on International Book and Library Programs. There are also several other private consulting and/or other firms with proved competence for providing expertise under contractual arrangements.

C. Current Problems in LDC Educational Improvement Programs of Relevance to Instructional Materials Analysis.

Since the beginning of U.S. technical assistance to the developing nations, projects in the education sector have been one of the significant program elements, though not the most heavily funded. In the Institute of Inter-American Affairs program in Latin America, beginning in the early 1940's, projects in education, health and agriculture were the dominant elements. Similarly, under the Technical

Cooperation Administration's programs in the Middle East and Asia, program emphasis during the early years centered on the same three sectors. At a later date—approximately 1950—activities of both Agencies were expanded to include industrial development and productivity; labor; public administration; community development; transportation; communications; housing; and public safety.

During the Marshall Plan program for European economic recovery, (1948-1955) emphasis was predominately on industrial development and productivity, with some modest attention to agricultural improvement. Attention to other sectors—including education—was not a significant factor. However, during the years of a unified U.S. Agency approach to foreign aid (1954 to date) LDC educational improvement has been a matter for priority attention.

In view of the special importance of education-sector programs in an analysis of the role of the printed word in development assistance, some comments are made herein which relate to basic aspects of past U.S.-assisted educational programs per se which are broader than but have a direct relevance to the instructional materials element thereof.

Projects in the education sector conducted with U.S. assistance have ranged from the elementary school to the University level; and have included in many instances significant emphasis upon technical, vocational and agricultural education and teacher-training. In all instances, these programs have been carried out in conformance with Host Government requests and stated priorities.

At the same time, however, any objective analysis of the world-wide educational program assisted by the U.S. (and by other donor entities as well) indicates many and sharp variations between the particular pattern and combination of activities carried out in the different countries. Differences have been due to a substantial degree to the pattern of specific problem areas or weaknesses in the individual country. Other variances, however, are clearly traceable to purely political or nationalistic considerations. (As just one example: Indonesia, during the Sukarno regime, would accept U.S. educational assistance only at the University level).

There is also considerable evidence that seemingly-capricious inter-country educational program differences (not related to the known needs of the approved country developmental goals or problems) have reflected—more or less directly—the particular composite of background, convictions and interest of the most dominant personalities on the A.I.D. education team and/or in the Host Country Education Ministry at the time of the project development. In a number of unfortunate instances, such projects have not met the real needs of the actual country situation.

There is a need for interchange of program experience

There is also abundant evidence and substantial agreement among seasoned A.I.D. educational administrators that a major factor in inter-country program and project differences is traceable directly to grossly-inadequate transfer between countries and between regions of

the accumulated record of proved educational improvement approaches, and of successful experience in educational planning, problem-solving and implementation techniques.

At present, no Regional Bureau has any detailed record or knowledge of the successful activities of the other Bureaus in their educational programs. Similarly, there is no record in any single spot of the totality of A.I.D. and other-donor-assisted LDC educational developmental program efforts, successes, and failures. While TA/E P² funds a service by HEW which records educational assistance projects outlined in the annual program books, this provides a bare outline only of the programs carried out; and does not record developmental activities of other entities. Further, occasional high-level discussions between A.I.D., UNESCO, Ford Foundation, OECD, etc., take place. To date, however, these fail to cope with the shortfall in communication of successes, failures, relative cost/benefit ratios of different techniques, and the down-to-earth "how-to" knowledge developed in actual operations.

It seems reasonable to assume that some significant improvements might stem from increased coordination and systematic exchange of information and materials on concepts, experience, techniques, problems solved, and the like. This should start first within the Agency, and be projected if and as proves appropriate to include other major donor entities. It is also possible that a donor-entity-facilitated inter-country exchange between the LDC's themselves might prove even more directly beneficial.

Hence, it might prove of substantial program benefit for the Technical Assistance Bureau, (under its broadened mandate for leadership in research, testing and innovative approaches) to undertake at an early date a highly-professional appraisal of the more important and significant of the education and instructional materials development programs carried out under regional, sub-regional and country programs, as a step toward identification of common problems and solutions; promising approaches for future application in various programs; and major gaps in both regional and country programs, which might be filled through the use of techniques successfully applied elsewhere.

This type of professional appraisal and analysis of what has been done seems especially essential, in view of the announced plans for new approaches to technical assistance to the LDC's, applying more innovative approaches and channeling support increasingly through multi-lateral and regional entities. Experience of the past has always proved to be a valuable guide for the future, whether in terms of what to do or what not to do.

Following a first analysis, if successful, action should be taken to set up a systematic approach to the continuing assembly, professional appraisal, indexing, cross-referencing, cataloguing, and storage for ready retrieval of the written records of the experience accumulated in educational development programs in the LDC's regardless of the donor entities involved.

The information and knowledge so organized should be kept up to date; and should be used currently for an active interchange of ideas, approaches and techniques for program planning, development and implementation. If properly handled in this manner, and stored for facile retrieval and micro-reproduction, a system of this nature should prove of direct benefit for assuring higher cost/benefit ratios in educational programs, as well as a frame for the intensified inter-donor cooperation and program coordination which appears an essential for the new approaches announced by Administrator Hannah.

There is need for emphasis upon strengthened relevance in LDC education

Historical analysis indicates clearly that most U.S.-assisted LDC educational projects have made both direct and significant contributions to the nation's growth process, especially through the rapid improvement of the capability of the nation's leaders and professional personnel to direct and manage the developmental process with increased effectiveness and without outside-expert assistance. However, at the same time conclusive evidence is accumulating that the LDC educational systems (including those expanded or re-shaped with outside-donor assistance) are not always those most directly relevant to the urgent human resources requirements of the nations for achieving their economic development goals.

In many LDC's, present educational systems, concepts and approaches are unfortunately much too similar to those of the past—which were established under a colonial heritage from 19th-Century Europe. Some of these systems are at best weak; and at worst, counter-productive to the best development and use of the nation's manpower potential.

In such cases, both existing educational approaches and the shape of the existing educational systems should be modified to meet more directly the real current needs of the nation's economic and social development process. To an increasing degree, educational planners of the LDC's and of the various donor entities are emphasizing the need for shaping future educational systems to meet national goals for improvements in the status, earning power and well-being of the peoples of the developing countries.

The following problems and/or limitations in some existing LDC educational systems have been cited increasingly by professionals in comparative education with respect to their relevance to national growth needs:

1. Formal educational systems are providing too many University graduates in disciplines such as law, economics, literary arts, and some of the sciences;—the local economy cannot employ them effectively;
2. The same systems are providing an inadequate supply of medical doctors, engineers, agricultural scientists, management consultants, business administrators, and health technicians, to meet the needs of expanding local productive enterprises;
3. Too few of the nation's youth are receiving from the formal educational systems the practical, pragmatic vocational, agricultural, crafts and technical skills required now and in future years to meet the demands of the economy;

4. Concurrently, grossly-inadequate attention is paid and resources devoted to the non-formal approaches to knowledge-transfer required to provide skills not obtained in the formal system; to cover the educational needs of those dropping out early in the educational continuum; and to provide both to the youth and to much of the nation's adult population a true understanding of the realities of the twentieth century and of the world in which they live, but of which they have not become a part.

To assure the knowledge and skills required; to motivate the more effective current involvement of the mass of the nation's citizens in the nation's affairs; and to meet basic human needs most effectively, planners and leaders of the LDC educational systems must work more closely than in the past with social, economic and manpower-development planners, to avoid any future irrelevancy in the nation's educational systems.

Further, it appears that additional and more-effective knowledge-transfer to the educational leaders and policy-makers of some LDC's may be required to break down mental, procedural and bureaucratic barriers between "Education" and "training" and other forms of knowledge-transfer. Too frequently, LDC educators have tended to direct their conceptual approaches and their policy decisions to the conventional academic disciplines only, in a formal framework. They have tended to downrate and to resist the efforts of those who would maximize non-formal approaches

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and an extension of short and medium-term training directed to middle-manpower, technical/vocational and adult education.

New and appropriate structures and systems of knowledge-transfer could likely be shaped, rather more rapidly than in the past, to meet at least the most urgent of the instructional needs of the majority of the people in the LDC's—including youth dropping out of the formal educational system and adults who have not yet been effectively involved in the nation's economic life.

Educational finance

Chief among the problems which face LDC educational planners and administrators is the growing spread between the demands for quality education and the resources available to provide it. It is almost certain that significant progress toward solving this problem can be made through new systems approaches which lower unit costs and make education more relevant to developmental needs. However, continuing pressures seem equally certain to remain due to the surging population growth and increasing aspirations of the LDC peoples.

A.I.D., UNESCO, the OECD and other donor entities are already giving significantly-intensified attention to the techniques and future potential of expanded bases for educational financing as well as to the relative cost/benefit ratios of alternative educational approaches and techniques. As this effort expands, in-depth attention should be devoted to the full scope of the potential resources, in kind as well as in money. Potential resources, tapped only sparsely or occasionally to date in some countries and regions and not at all in others, include:

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- *Broadened approval of education-sector loans—at preferential rates of interest—as alternatives to grants;
- *Use of available local currencies generated under programs of development assistance (agricultural surplus sales, commodity import financing, etc.) to cover the in-country costs of educational improvement, instructional materials production, strengthening of local educational publishing capability, etc.
- *Financial and/or expert services support from local and/or international private-sector enterprise. (Such financial support was made available for the establishment of the Asian Institute of Management in Manila. It would likely be evoked in other instances, especially where needed vocational/technical/crafts/professional skills would be forthcoming). The potential for such support has never been explored in full.
- *New support might be identified through expanded collaboration with pertinent development-financing and similar entities. (Regional and in-country Institutions might in due course follow the IBRD lead.)
- *A large number of voluntary agencies are involved in overseas technical assistance. While financial inputs from them are not likely, services in kind might be forthcoming for programs developed cooperatively with the Host Government and A.I.D.

CHAPTER III

OVERSEAS PROJECTS INVOLVING APPLICATION AND/OR DEVELOPMENT OF PRINTED MATERIALS IN BI-LATERAL PROGRAMS

This chapter provides for each Region targeted by U.S. development assistance a brief resume of significant past and current project activity utilizing the printed word as an input element. Included are activities involving the flow of printed materials (published and unpublished) from the U.S. to the cooperating country for individual use or as elements in library development; and activities relating to in-country or regional development and diffusion of knowledge-transfer printed materials.

This resume is followed by project-by-project detail on activities included in the F.Y. 1972-73 program book, with specific financial data provided where readily available. Since for many projects there is no detail to reflect the specific funding for the printed materials element, data provided herein are illustrative rather than comprehensive.

A. Latin America.

1. Highlights for the Region:

Latin America was the first region in which the U.S. Government was involved in bi-lateral programs for the transfer of concepts and know-how for developmental assistance, involving the exchange of persons and the application of non-personal resource materials, primarily in published form. Over the years, U.S.-assisted programs for national development in the Latin American Region have involved a larger number and wider variety of activities utilizing the potential of printed material as inputs than in any other area.

From the beginning of the programs of the Institute of Inter-American Affairs and the Inter-American Education Foundation, transfer of know-how through the medium of the printed word was a significant element; and the size and diversity of techniques applied increased markedly during the decades of the 50's and the 60's. There was a large and well-organized flow of such materials in the initial education, agriculture and public health programs, through a wide variety of books, journals, pamphlets, monographs, special reports, answers to inquiries, and other specialized writings disseminated through the network of developmental Institutions carrying out the cooperative projects in these sectors. At a later date similar activities in other sectors (including industry, public administration, labor, transportation and communications, civil aviation, housing, etc.) following a similar pattern, or even an enlarged scale at least in the industry program. In all instances, the indigenous developmental Institution played the key role of transfer and diffusion agent for the printed materials flowing from the United States and (to a lesser degree) from other nations. In many instances, the role of the indigenous Institution involved translation, adaptation or abridgement as well as selective dissemination, storage and retrieval of the original English-language materials received.

Over the years, the commercially-published technical and reference books and texts represented the largest-volume item in printed materials for knowledge-transfer. Involved were centrally-funded selective samplings of newly-published books; bibliographic advice and guidance as to materials available and sources; a selective flow of donated new and used books and

monographs of specific program utility; and specialized materials for use in local manpower development and training programs.

To meet the requirements of the expanding development-assistance programs in Latin America for materials in the Spanish language, a "Regional Technical Aids Center" project was initiated in 1957 to effect continuing arrangements for Spanish editions of appropriate U.S. printed materials and film. This project made possible the provision and use of an increasingly-large flow of both commercial and non-commercial Spanish editions of U.S. publications of direct and practical use in on-going developmental projects in the region--books; monographs; pamphlets; research reports; digests of periodical literature; and other required materials. This program, now supported with about \$2,000,000 in A.I.D. regional funds per year, has constituted a major factor in overcoming the language barrier which had earlier hampered the facile transfer of concepts and technology. Its success has also provided a tremendous economy in the total printed materials program through the longer runs and elimination of the duplication of translation efforts which attended the earlier individual-country development of Spanish versions of needed printed materials resources.

As a by-product, the RTAC operation led directly to the development and expansion of strong and effective private-sector publishing and book production capability in Mexico City and Buenos Aires, where its contract production and book-sponsoring activities have been centered. During the past three years, the RTAC program also has spearheaded and supported a significant expansion in the provision of needed low-cost Spanish-language text and

reference works for Latin American students, through sponsorship and support for newly-established or expanded University book stores.

An exploratory RTAC-stimulated Portuguese-language printed and visual materials production project in Rio de Janeiro paved the way for a subsequent—and larger—Brazilian—U.S. bi-lateral program for the development of needed textbooks in the Portuguese language, for all levels of the school system.

During the decade of the 1960's, under the program of the Alliance for Progress, the scale of funding and program support for the use of U.S. books for development increased sharply; and major projects involving book use in both English and Spanish editions were carried out in many countries. Probably the most notable examples—in addition to the Regional Center program in Mexico City and Buenos Aires—were carried out in Guatemala, the Dominican Republic; Central America; Brazil; Peru; Columbia; and Venezuela. These projects involved a substantial range of book applications, ranging from texts for teaching of English as a second language to entire libraries for major colleges and University Faculties.

During the past three fiscal year, project funding for the procurement and use of U.S.-source printed materials for library development and for other program applications has declined from the peaks of the mid and late 1960's. However, the regional RTAC operation providing Spanish editions of U.S. publications has increased steadily to its current peak, in response to specific program demands. The decline in other printed materials activity is traceable to the termination of centrally-funded experimental and demonstration book-flow projects; continuing cut-backs in country program funding and the gradual elimination of all but the most essential and fully-committed developmental projects; and an apparently-unplanned but very real-de-emphasis upon the use of books in A.I.D. developmental programs.

As part of both sub-regional and country bi-lateral programs for economic development, the U.S. has regularly assisted the indigenous development of printed instructional materials for the educational system, pegged to modern curricula and educational approaches. In Latin America, the size and scope of these educational development activities has increased in the past five years under the Alliance for Progress education sector loan program. At present, the total of educational development funding for the Latin American region is far larger than that for either Asia or for Africa. The sector loan program approach reportedly also involves the assumption by the Host Countries of a larger degree of program responsibility than that characterizing most development grant projects. Especially large programs of this nature are in Brazil; Columbia; and the Dominican Republic.

Under these educational development programs, modern and more relevant curricula have been or are being developed and introduced; educational administrators and teachers have been educated and trained, both in the U.S. and in-country; and instructional materials suited to the needs of the country have been developed, produced and used.

A significant element in the educational improvement efforts in Latin America has been the experimentation and development, on a sub-regional basis, of new and practical Spanish-language texts, teachers' guides and

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related instructional materials for use in the elementary school systems of a number of nations. Such material, developed with the Central American states as the initial targets, is under study for possible adaptation and use also in some South American nations.

NOTE: A useful series of tabulations outlining the elements of the Development Grant and education sector loan program of the Alliance for Progress is appended hereto (pp. ~~BI~~a,b,c). A tabulation outlining, by country, other donors supporting educational development in Latin America is shown herein. (III d).

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						The Ministry of	Primary Education	Secondary Education	Vocational Education	Higher Education	Non-formal Education	Adult Education	Planning	Research	Experimental	Teacher Training (Formal)	Teacher Training (In-Service)	Participant Training (Area of U.S.)	Participant Training (In-Country)	Curriculum Development	Development of Teaching and Learning Materials	ITV	Training of Administrators	School Construction	
Argentina	779	245	132	-	-																				
Bolivia	365	598	468	331	515	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Brazil	2,913	3,451	3,015	2,919	2,433	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chile	454	301	203	100	125	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Colombia	818	1,113	512	439	215	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Costa Rica	223	125	103	13	236	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Dom. Republic	882	500	101	-	-	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Ecuador	746	321	206	721	356	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Guatemala	278	361	365	315	308	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Guyana	-	-	-	50	50	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Honduras	274	318	153	436	459	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Jamaica	237	276	-	-	-																				
Nicaragua	323	349	233	223	30	✓	✓	✓	✓	✓	✓	✓								✓	✓				
Panama	267	169	309	339	230	✓	✓	✓	✓	✓	✓	✓								✓	✓				
Paraguay	569	47	326	373	383	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Peru	476	232	180	190	215	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
Uruguay	104	11	-	-	-																				
Venezuela	319	309	489	301	350	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
E. Caribbean	-	-	-	-	-																				
Latin American Regional Projects**	675**	2,034**	2,395**	3,909**	3,340**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EL Salvador	794	605	449	357	113	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓		✓	✓				
ROCAP	550	1,104	939	840	721	✓	✓	✓	✓	✓	✓	✓								✓	✓				
GRAND TOTAL 22#	11,895	11,723	11,000	11,355	10,023	18	17	15	5	10	15	3	13	5	4	12	11	16	3	10	15	3	9	3	

Legend:

** - Totals for the Latin American Regional Projects, include such projects as the Latin American Scholarship Program (LASPAU), the Regional Technical Aids Center (RTAC), Education Sector Support Project (Florida State University and Stanford Research Institute), Leadership Development for Women (League of Women Voters), etc.

✓ - Planning, research and experimentation under FSU, State etc. done in and with several countries (especially in Latin America)

- Includes ROCAP and Regional Projects which service the central American Republics (ROCAP) and/or some or all the other countries of Latin America (LASPAU-RTAC, etc.)

o - Any training programs carried on outside the regular school system, such as, literacy, adult vocational training, agricultural extension activities, population planning programs, etc.

o - Participant training sponsored by N.I.D. directly or through its contractual arrangements with U.S. universities.

						The Ministry of	Primary Educa	Secondary Educa	Vocational Educa	Higher Educa		Planning	Research	Experiments	Teacher Train	Teacher Train	Curriculum de	Scholarship Pro	Scholarship Pro	School Construc	Provision of Edu	Preparation and	Training Administ	Ministry of Educa	ITV	Training for Indus	Science & Techno	
Argentina																												
Bolivia																												
Brazil	72,000 ^(*)		50,000 ^(*)		20,000 ^(*)	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓				
Chile	16,300 ^(*)	2,500 ^(*)				✓	✓	✓	✓									✓	✓	✓	✓	✓	✓					
Colombia		10,500 ^(*)	15,000 ^(*)	15,000 ^(*)	20,000 ^(*)	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓					
Costa Rica						✓	✓	✓	✓																			
Dominican Rep.	12,000 ^(*)			2,130 ^(*)	2,000 ^(*)	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓					
Ecuador				2,000 ^(*)		✓	✓	✓	✓									✓	✓	✓	✓	✓	✓					
El Salvador	1,200 ^(*)	8,200 ^(*)			2,200 ^(*)	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓					
Guatemala	8,600 ^(*)				3,000 ^(*)	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓					
ICR/CRP					7,000 ^(*)				✓																			
Guyana						✓																						
Honduras				2,000		✓						✓						✓	✓	✓	✓	✓	✓					
Jamaica						✓	✓	✓	✓			✓																
Nicaragua					6,000 ^(*)	✓	✓	✓	✓			✓																
Paraguay		1,300 ^(*)	8,500 ^(*)			✓	✓	✓	✓			✓						✓	✓	✓	✓	✓	✓					
Peru					2,500 ^(*)				✓									✓	✓									
Uruguay																												
Venezuela									✓																			
Zaire					10,000 ^(*)				✓																			
L.A. Region																												
22 ^(*)	70,800	22,000	77,700	32,750	70,500	11	9	10	5	12		8	6	5	9	9	3	10	8	6	6	7	9	5	3	2		

Legend:
 * - Withdrawn in FY-88 but unsigned due to changed situations.
 ** - Re-designated loan reflecting new situations.
 † - Loan listed under heading of Human Resource Development which will have Education in it.
 • - Education Loan Credit Programs - Loans to undergraduates and/or graduate students.
 † - Round number of 22 - considerations: RCRP (Regional Credit Program for Central American Countries); L.A. Regional Banks for other projects, involving various countries of L.A. (such as, LASERU, RIAC, FSU, etc.) also, listed are countries that at present

do not (now) have loans but may at some future time (Bolivia, Argentina, Costa Rica, Guyana, Jamaica, Uruguay, Venezuela).

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-9 III

	WORLD BANK	INTERAMERICAN DEVELOPMENT BANK	ORGANIZATION OF AMERICAN STATES	UNITED NATIONS Employment Fund	UNESCO	ILO	UNICEF	FAO (WHERE APPROPRIATE) UNIVERSITIES, A.G.S.	OTHER UNITED NATIONS GROUPS (e.g., ITU, UNESCO)	VOLUNTARY U.S. AGENCIES	FORD FOUNDATION	ROCKEFELLER FOUNDATION	MICHIGAN STATE UNIVERSITY (COUNCIL FOR THE DEVELOPMENT OF THE WORLD)	HELLOGG FOUNDATION	OVERSEAS EDUCATION FUND (League of Women Voters)	UNIDO (UNDP)
ARGENTINA	✓	✓		✓		✓					✓			✓		
BOLIVIA	✓	✓					✓			✓						
BRAZIL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
CHILE	✓	✓		✓	✓	✓	✓			✓	✓	✓		✓		
COLOMBIA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
COSTA RICA	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
DOMINICAN REPUBLIC	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
EQUADOR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
EL SALVADOR	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
GUATEMALA	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
GUAYANA																
HONDURAS	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
JAMAICA		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
NICARAGUA		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓		
PANAMA	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
PARAGUAY	✓	✓				✓	✓			✓	✓	✓		✓	✓	
PERU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
URUGUAY	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
VENEZUELA		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
LATIN AMERICA REGIONAL PROJECTS																
RSCAP																

19 countries, and 2 regional groups

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SPECIAL NOTE:

External assistance to education in Latin America's varied and complex. It takes many forms and ranges widely from a small donation of books to a comprehensive project with mutual obligations, involving millions of dollars. In the variety and complexity of operations it becomes difficult to obtain a clear picture of the total external assistance made available to education in Latin America. The problem has been complicated by the fact that data available on external assistance is scattered throughout several government offices in many countries

and there are some forms of assistance provided by foreign educational and private voluntary institutions directly to local entities which were unknown even to the appropriate governmental offices. This study really could be considered as a "base off point" for those who want to make a more in-depth study of other donors (not U.S.) to Latin American educational development. Other bilateral governmental groups are numerous and could be the subject of a separate study or a part of an in-depth study as indicated above. Some of these are foreign industrial groups, notably

P III

A. 2. Illustrative Current Projects involving printed materials as a tool for transfer of technology and concepts; and for library development

a. Regional:

1) Special multi-lateral fund for Education, Science and Technology (598-15-475)

Funding: Estimated total, \$25,000,000 (Science and Technology, \$15,000; Education and Cultural, \$10,000)

Cumulative through 6/30/70: \$9,200,000

Est. FY 71: \$7,500,000

" FY 72: 8,600,000

Science and technology phase: This program to date has emphasized post-graduate training at Latin American Universities, and efforts to develop a sound Institutional frame for future transfer-of-technology activities, which will rely in part upon printed media but will also include some continuing participant training and transfer of expert services. Through 1971, the project has provided \$1.8 million in library development and laboratory equipment (no breakdown presently available).

Educational and cultural phase: To date, the educational development activity has concentrated on educational planning and administration; on curriculum reform; educational innovation and technology; and technical and vocational education. Through 1971, the project has provided over \$845,000 for library development and research equipment (no breakdown presently available).

2) Special Development Assistance Fund—Support to the Inter-American Economic and Social Council (598-15-995-601 and 602)

Funding: Through 6/30/70: \$24,342,000

FY 71 est: 4,800,000

FY 72 est: 8,400,000

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This project supports multi-lateral technical assistance, research and training activities in fields such as tax policy; natural resources; public administration; and Social development. The project is primarily for training and exchange of personnel. However, there is a modest element of print media utilization in the form of library development, the provision of instructional materials and some other print media as tools for reference and knowledge transfer.

3.) International Tropical Agricultural Center (598-13-110-545)

This major regional development project is assisted jointly by A.I.D. and the Rockefeller and Ford Foundations. The program involves a variety of knowledge-transfer activities, including the use of print media (in amounts not specified).

Estimates for FY 1972 A.I.D. funding including a sum of \$81,900 for library development.

4) ROCAP—Capital Market Development (596-11-920-036). This project contains in the commodity element provision of \$10,000 for the purchase of books, journals and related research—reference materials.

b. Brazil programs: books as elements in developmental projects:

1) Agrarian Reform (512-15-120-249) The project provides in the commodities element for the purchase of training and instructional materials—\$10,000 in FY 1971, \$15,000 estimated for FY 1972.

2) Education Administration and Planning—Fundamental and Secondary Education (512-11-680-296)

Commodity element provides for purchase of U.S. books, \$5,000 in FY 1971; \$3,000 in FY 1972.

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3) Higher Education (512-11-660-263) Provision for purchase of books, publications and training aids: FY 1971, \$11,000; 72, \$6,000.

4) Development Planning and Administration (512-11-790-122) Funding for procurement of books, publications and training aids, 71, \$1,000; 72, \$1,000.

c. Bolivia program: books as elements in developmental projects.

1) Government Management Assistance—Institute of Public Administration (511-11-720-082).

Teaching aids: FY 1971, \$62,000; FY 72 estimate, \$20,000.

d. Guatemala program: books as elements in developmental projects.

1) Educational Development (520-15-690-198)

Purchase of ODECA/ROCAP Spanish-language textbooks, FY 71, \$6,000; FY 72, \$45,000.

III. A. 3. Details on illustrative projects involving indigenous development of technical and instructional publications; and/or development of local publishing—production capability.

a. Regional:

1) Regional Technical Aids Center (RTAC) (598-11-995-005)

Funding: FY 1957-70: \$9,583,000; FY 71, approx \$2,000,000;

Fy 72 (est) \$2 million

Major cost categories as of FY 1971:

Support funding for commercial book publication: \$446,000

Contract production of non-commercial publications: \$115,000

Funding of provision of Spanish-language films: \$93,000

Funding support, Spanish-version books for University

book-store program \$50,000

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Administrative expenses (including shipment costs); \$174,000

U.S. and local technicians (5 U.S.; 23 locals): \$149,000

RTAC was established to provide a centralized facility to generate the Spanish-language materials required for U.S.-assisted developmental programs in Latin America. Initially, its activity was focused mainly on non-commercial manuals, pamphlets and technical brochures to meet the specific needs of the various sectors of the developmental program. Since 1960, an increasing proportion of RTAC publishing activity has involved sponsorship of privately-published and commercially-vended translations of U.S. texts and technical books in Spanish versions. Since 1958, RTAC has also provided its clients with a Spanish-language technical film loan program which has proved eminently successful.

Since its inception, RTAC has sponsored Spanish editions of over 700 titles published by private commercial firms in Mexico City and Buenos Aires. The non-commercial publications program has involved production and distribution of over 8 million copies of approximately 2,800 monographs, pamphlets and reports. Over the same period, RTAC has arranged for script translation and Spanish soundtrack dubbing nearly 1,000 technical and training films for the loan program.

As a direct outgrowth of this RTAC program, more than twenty U.S. publishing firms have engaged in joint ventures with Mexican and Argentinian publishers, which comprise a significant element in the flourishing publishing community in these two cities. The film program has been a factor in the successful expansion of Mexico City's film industry.

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RTAC has devoted increasing attention in the past four years to the development and support of University bookstores in Latin America, as a cooperative endeavor with Host Governments and country USAID's. The mechanism normally involved is a program agreement between the Host Government and the USAID, with RTAC as a helpful third party. It was reported in calendar 1971 that about 120 Latin American Universities and Technical Institutes now operate successful campus book stores as a direct outgrowth of the RTAC—USAID—assisted project. These book stores play a major role in assuring the availability of needed Spanish-language textbooks for Latin American college and University students, at a price they can afford to pay.

The projected RTAC program for FY 1972 proposes sponsoring 60 commercially-published books, with RTAC guarantee purchases totaling 145,000 copies; 5 non-commercial technical monographs and pamphlets with at least 600,000 copies produced; 60 Spanish editions of U.S. technical films; and one original film production. High priority will also be given in FY 1972 to publishing and visual projects of an innovative nature, perhaps including programmed texts, films, etc. on educational technology.

2) Textbook development (Central America Regional) (596-11-640-006)

Phased out end of FY 71) Funding: Cum. through 1968: \$2,222,000; 69, \$407,000; 70, \$470,000; 71, \$390,000.

This project was initiated in 1962, when 80% of the students in the Central American Region and Panama were without books of any kind. No one in these countries had the technical or institutional capability to provide needed textbooks on its own. The ROCAP textbook project was designed to

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institutionalize a program which would produce by 1971 some sixteen million texts required to blanket elementary education in the:

five basic curriculum areas of science, mathematics, reading, language and social studies. Under the project as developed, manuscripts are generated in the regional ODECA/ROCAP center now located in San Salvador; and the books are printed in needed quantities in each of the participating countries.

Each book produced and approved becomes the official textbook for all of the targeted countries, without any national variations, since the project is seen as an element of the hoped-for integration of the Central American region--which presupposes that regional cooperation over a broad spectrum of development activities is one of the most effective ways to achieve economic and social progress in the small countries of Central America.

Through April 1971 about 14 million texts and 350,000 teachers' guides had been produced and distributed--with texts free to students--for the first six grades. Thirty of a planned 37 standard texts had been completed, the remainder to be completed by the end of calendar 1971.

Significant accomplishments of the program included:

Establishment of a successful regional textbook manuscript production center.

Reduction in unit costs, through standardization and long print runs, to an average of 16 cents per copy for an illustrated 100-page paperbound book.

Both technical and administrative direction of the Center transferred to ODECA--the Organization of Central American States.

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Shared accomplishment of educational reform, teacher and supervisor training, and assurance of textbook use in the region.

Development of an institution capable of carrying forward efforts to improve texts in use; prepare supplementary materials; and provide secondary-school texts to meet established needs.

A survey recently conducted indicated that 97 percent of a representative sample (2,026) of the elementary schools in the sub-region are now using the books; and that 38 percent of the schools checked were using no books other than the ROCAP/ODECA series. An extrapolation of the survey figures led to an estimate that about one-half million Central American elementary school students would have had no books without the ODECA program.

As a reportedly-direct result of the now-terminated elementary school textbook development project, technical assistance in educational planning and research was initiated in FY 1969; and is scheduled to continue through FY 1972.

3) ROCAP: Regional Legal Textbooks Project (component of project for Development of Institutions of Higher Education) (596-11-660-012.1)

Initial Funding for Textbook Development (FY 1972, proposed) \$91,368

Project is planned to provide regionally-oriented technical assistance to develop capacity for the preparation of legal textbooks specifically designed for use throughout Central America; to actually produce three such textbooks; and to promote the future sale and financing--on a private-sector basis--for additional texts, as needed, in the future.

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This project will involve funding through ROCAP of a cost-reimbursement contract with the International Legal Center, 866 United Nations Plaza, New York. This entity will carry out the project, drawing upon technical leadership from Deans of Law Faculties in Nicaragua, Costa Rica and Guatemala, and services of various Latin American Law Professors for manuscript development, on a salary-augmentation basis to assure the needed free time.

The ROCAP program will also finance the initial cost of printing, up to \$1,000 for each book. Free (review) copies will be distributed to CSUCA-affiliated law schools; and the ILC will promote use of the books throughout Latin America. The remainder of the print run will be available for commercial sale.

NOTE: The larger, institution-building project, of which this is an element, involved total FY 64-69 funding of \$2,472,000, plus 70-72 funding projected at \$1,800,000.

IIIA. 3. b. Bolivia:

Human Resources Development (511-11-690-439)

(Includes Curriculum revision and textbook publication sub-project--
511-11-690-439.2)

Funding, total Project: Cumulative FY 1966-71, \$1,486,000
FY 72 (Est) \$515,000

Funding, curriculum--textbook sub-project: Cum. FY 70-71: \$473,000
FY 72 (Est) 180,000

The total project is designed to introduce educational improvements to lower the illiteracy rate; to increase administrative efficiency of the educational system; to increase nutrition to acceptable standards. The approach involves support of GOB literary campaign, providing technical and

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commodity assistance to the curriculum laboratory which provides a permanent center for improving curricula and producing textbooks and other instructional materials for the nation's elementary schools. The project proposes also to support improved administration and unification of the Bolivian educational system; to improve teaching skills; and to assist raising daily per capita food consumption to the FAO minimum standard.

To date, in the teacher-training phase, 20 seminars have been held, serving approximately 2500 public and private school teacher-trainers, supervisors and administrators. Some 150 district officials attended workshops on modern methods of educational program planning, control and evaluation. It is reported that the Bolivian Government has now incorporated most of the recommendations of the A.I.D.-sponsored Research Foundation study on educational sector requirements into its official education development strategy.

Under the textbook publication-- Curriculum revision sub-project, the basic goal is not only to generate needed texts pegged to modern curricula, but also to establish a permanent institution capable of continuing review, up-dating and revision of the curriculum and the generation of the array of teaching materials and guides required for the elementary school system. The curriculum revision laboratory has been established in the Ministry of Education; and a permanent section has been set up to carry forward systematic curriculum evaluation and revision. A 31-member staff has now been trained--adequate in size to continue the program without direct U.S. assistance after FY 1972.

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The laboratory will have an approximate capability for seven texts per year by 1972; and a rotating book fund has been set up by the Education Ministry to fund future book development. By the end of calendar 1970, 80,000 booklets and 15,000 charts had been prepared for use in the literacy campaign; and 200,000 copies of pre-primer texts had been produced and distributed.

Schedules for further production were:

1971, 200,000 copies of elementary mathematics, science and language arts texts;

1972, 400,000 texts;

1973, 600,000 texts.

The A.I.D. advisory staff is carrying forward continuing efforts to stimulate interchange of texts produced in other Andean countries, in an effort to assure maximum textbook generation at minimum expenditure of time and effort, through avoidance of unnecessary duplication.

c. Brazil--country programs, development grant funding:

1) Technical, Scientific and Educational Publications (512-11-691-127)

Funding Information:

Cummulative, U.S. dollar funding, FY 1962-69	\$648,000
" " " 1970	226,000
" " " 1971 Est.	247,000
" " " 1972 "	118,000

According to audit report, under four release agreements, 52 million cruzieros were also allocated to the program by the U.S. from counterpart funds generated under program loans, for the National Textbook Council (COLTED) which was primarily funded by the Government of Brazil.

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Brazilian budget for COLTED reportedly amounted to 48 million cruzieros during 1967-1970; and for 1971, only 7.8 million cruzieros. In June 1971, responsibility for the book program in the GOB was transferred to a National Book Institute, as COLTED was abolished.

The program goals, as revised June 30, 1969, were to:

Encourage the establishment of a national textbook policy, which would provide budgetary support for the evaluation, purchase, distribution and utilization of textbooks for Brazilian students at all levels.

Provide free texts to elementary and secondary school students; and to make available at low prices text and technical books at the University level.

Assist federal, state and municipal institutions in preparing school teachers to use textbooks effectively, as teaching tools.

Promote the development of libraries in elementary and secondary schools and universities.

The original (and overly-ambitious) project goals projected the development and distribution of some 51 million books during a three-year period. However, because of inadequate Brazilian financing, COLTED (the new book organization set up in the MOE) was able to produce and distribute only 24 million volumes, up to the end of its lifespan. State Technical Book and Textbook Commissions were also established in all States in the Nation.

Work on the Brazilian textbook program is continuing under the new National Book Institute, with Brazilian financing shared between the Federal and State Governments.

Under the program, while the total activity 1962-71 fell far short of the planned target of 51 million books, the books which were produced were distributed effectively--10,220,664, to 4,555,123 elementary and secondary

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students in 17,051 schools throughout Brazil; and 13,795,607 to 32,957 school libraries, as demonstration units--the largest such distribution ever taken at one time in Brazil. The system of State Commissions, effectively working with the Federal COLTED, was responsible for this successful action.

In addition to the development and distribution of books, a series of actions, (including training in the U.S. and in-country training seminars and sessions) were taken under the COLTED program to strengthen the indigenous book industry--reportedly with some success. Also, about 30 percent of Brazil's primary--secondary school teachers (192,000) received some short-term training in the use of modern instructional materials in the classroom.

Reportedly, while this was a step in the right direction, the MOE will need to pay increasing attention in the future to sound--and longer-range--teacher training.

Also, reportedly, the goal of assuring low-cost texts for University students has not been achieved, and further work on this line would be required.

2) Secondary and Industrial Education (512-11-610-042)

<u>D.G. Funding,</u>	FY 1964-71:	\$5,101,000	Est. to complete:	\$355,000
	FY 72 Est.	455,000		

This project, which continues industrial education activity initially conducted during the 1950's under the Institute of Inter-American Affairs Program, has as its specific goals the institutionalization of a system of secondary educational planning in nine states by 1971; assistance in the development of comprehensive high schools; improvement in the quality and

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quantity of skilled and semi-skilled manpower; and strengthening the institutional capabilities for preparing secondary-school teachers.

The print media element of this program has included, since the beginning of the industrial education program, the in-country development, distribution and use of practical vocational education texts, training materials, etc., in Portuguese, for use throughout the nation-wide state and local training center system, and in individual factory training courses. (An estimate of funding for this print media element is not available)

d. Brazil--education sector loan programs:

1) Secondary and Industrial Education-Sector Loan I (1968) (\$32,000,000)

(Brazilian Government matching in local currency)

This sector loan-funded project focuses on qualitative educational changes, such as introducing a comprehensive and more practical curriculum, modern teaching techniques, establishment of additional vocational training centers, development of standardized tests and norms, etc., and instructional materials development. (No detail on funding for or activity in shaping such materials).

2) Education Sector Loan II. (Loan No. 512-L-078) 1969. \$50,000,000.

(Brazilian Government matching in local currency)

The purpose of this loan is to effect further needed quality improvements in secondary education, including modernization of curriculum, teacher training, and improving physical facilities of schools, principally in Bahia, Minas Gerais, Rio Grande do Sul and Espirito Santo. The loan-funded activity is concentrating on the integration of primary and secondary education planning.

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Elements of the 1970 sector loan plan being implemented include:

U.S. input (matched by Brazilian input)

1. Management Information System: \$400,000
2. Curriculum development and instructional methods improvement: 1,532,000
3. Development of instructional materials: \$7,500,000

Phase I: to provide 1 book per student in first and second grade; 3 books per student in third and fourth grades.

Phase II: to provide 1 additional book per student, first and second grades.

4. Staff training and development: \$5,900,000
5. Educational research and innovation: \$5,000,000

NOTE: A third Educational Sector Loan of \$20,000,000 is proposed for approval in 1972. Details of activity elements not yet obtained.

e) Chile--Education Sector Loan Program: Loan 513-L-034, 10,000,000 1967
513-L-040 16,300,000 1968

These loans are provided to the Government of Chile to facilitate its efforts to completely restructure its educational system at the primary and secondary levels, scheduled for completion during a six-year period. The long-range-objective is an educational system which will provide education for all the lower-income classes and assure the availability of the trained people necessary for sustained economic growth. The loan finances local currency investment expenditures in education by the Chilean Government; direct imports of educational equipment from the U.S.; and technical assistance.

Tranche releases of funding under the sector loans are keyed to Chilean performance on various facets of the educational development plan, including shaping eight-year modern primary cycle and a two-track (general and vocational) secondary cycle; curriculum modernization; production and distribution of appropriate new textbooks; improved and expanded teacher education and training; and allocation of a greater share of Chilean public sector funding to education.

In mid-year 1969, a loan review showed that targets were in general being exceeded in actual performance. For example, during 1968, 12,000 teachers were retrained; 1,780,000 textbooks were distributed; 2,012,000 children enrolled in primary schools. (Specific details on current activities not yet in hand).

f) Columbia--Educational improvement--grants and sector loan

Funding: Past DG funding shown as follows: 1962-1971, inclusive

Total	\$9,500,000
FY 62	4,331,000
63	1,209,000
64	249,000
65	537,000
66	374,000
67	315,000
68	649,000
69	1,063,000
70	483,000
71 (est)	138,000

Education Sector Loan Funding:

Loan I (514-L-054), 1969,	\$10,000,000
II 1970	15,000,000
III 1971	20,000,000
IV (Proposed, 1972)	15,000,000

Loan provisions, targets, scheduled activity, funding breakdown where available:

- Loan I:
1. Regional education funds set up for improved local financing of primary education; improvement of management of education finances; better administration of schools; and design and construction of new school buildings.
 2. Extension of secondary school reform. Estimated 10 million pesos applied for 20,000 sets of texts to students in key secondary schools (INEM's). Note: Chilean peso at about 21/US\$

3. For Columbian Institute for Development of Higher Education.
4. Primary education--provision of free textbooks for children of first and second grades in rural areas: 1,400,000 texts, at cost of 4,450,000 pesos.
5. Legislation on fiscal reform in education.
6. Financing of educational activity.

- Loan II:
1. Primary education--costs of providing 5,560,000 free texts and other instructional materials, to cover up to a total of 30% of all primary students by end of calendar 1970; and a total of 40% of primary students by end of 1971; and to provide teachers' guides to 50% of all primary school teachers. Estimated 18 million pesos for these primary teachers' guides.
 2. Provide 40,000 complete sets of texts for all INEM secondary school students. Estimated 20 million pesos cost.
 3. Higher Education: 1,000,000 pesos for revolving fund for University book stores, to provide rental textbooks; 1,000,000 pesos for production of new Spanish-language University textbooks; and 5,000,000 pesos for purchase of University library collections.
 4. Adult education - included, but no financial data shown.

Loan III (projected application)

1. Primary school improvement, continuing effort: US \$6,200,000
Educational TV: U.S. \$1,0 million; Textbook component, US \$1.2 million (eight times the relative amount in 1969 allotment).
2. Secondary school component: US \$5.0 million. To add 5 satellite schools to the five established in 1970, plus improvements in the operation of the 10 INEM'S.

Textbook component: Free texts for all students in the INEM'S, plus teachers; guides, instructional materials and library collections. Also, three complementary centers (CREES) in selected urban areas to be provided with instructional material. Estimated amount, approximately 20 million pesos.

3. Post-secondary school: \$0.6 millions.
4. University integration and improvement: \$5.0 million
5. Facilities of Education: \$1.2 million.
6. Extend educational opportunities: \$0.4 million
7. Improve management: \$0.6 million.

Proposed Loan IV:

1. Experimentation with educational innovation, \$2,000,000
2. Expand activities in primary education program: \$3,000,000
3. Develop diversified secondary education system: \$3,000,000
4. Develop network of teacher training institutions: \$3,000,000
5. Improve educational administration: \$1,000,000

g) COSTA RICA

Project No. 515-11-680-085

Began: FY 1965

Proposed Terminal Date: FY 1974

GENERAL ASSISTANCE TO EDUCATION

Project Objective and Description

The purpose of this project is to assist the Ministry of Education by improving the quality of its primary education system, by printing and distributing ROCAP/ODECA textbooks, by advice and assistance in administration, planning and curriculum. Another objective is to work with the University of Costa Rica in developing and implementing a loan for faculty improvement and student scholarships.

Expenditures:

Expected Expenditures
for Project Completion:

FY 1965 - FY 1968	\$ 301,000	\$209,000
FY 1969	131,000	
FY 1970	67,000	
FY 1971 (Est.)	258,000	(All for textbook production)
FY 1972 (Est.)	164,000	" " " " " "

Progress to Date:

To date more than 2,000,000 elementary textbooks have been produced under this project, teachers and supervisors have been oriented in the utilization of them, and Ministry personnel have been assisted in establishing warehousing and distribution procedures.

Improvements were made in the three normal schools, including administration refinements, practice teaching programs, and improved teaching procedures.

Improvements were made in the three normal schools, including administration refinements, practice teaching programs, and improved teaching procedures.

The NEA Teach Corps assisted in the training of more than 5,000 teachers in series of workshops in school organization, methods of teaching mathematics, science, and language arts, and the 94 district supervisors in the functions of their positions. Supervisors were assisted in developing supervisory programs for their respective districts.

With the assistance of RTAC in Mexico, textbook rental library and bookstore programs were developed in the national university and the normal schools of the country.

The program is phasing out with only the textbook production activity in operation in FY 1971. Final funding will be made in FY 1972.

h) Dominican Republic--Educational Development program.

1971, Education Sector Loan, \$10,900,000. No. DLC/P-980

Summary of prior education-sector assistance, 1952-70:

General education assistance funding:	1952-57, \$1,031,000	(DG)
	1962-63, \$5,000,000	(from sector loan)
	1965-71, \$1,010,000	(DG)

Textbook assistance (amounts of funding not shown):

1962-63, 800,000 beginning readers, plus teachers' manuals
10,000 7th and 8th grade English textbooks.

1966-67, Revolving textbook rental projects at all four Institutions
of higher education, plus 2 agriculture secondary schools.

Participant training: 1962-70, 552 education sector participants.
(Participant training sector loan, 1968, \$1,400,000)

Proposed activities, 1971 sector loan: Assist Host Gov. in establishing new National Education Center as focal point for educational improvement, with four departments: Training and upgrading; educational research; curriculum development: text and instructional materials.

1. Upgrade educational level of teachers and professionals...\$3,450,000
 - a. Improve programs to prepare new teachers -- \$1,415,000.
 - b. Upgrade capability of existing teachers and professionals
 - c. Prepare and upgrade supervisory and administrative personnel
 - d. Provide incentives to hold qualified personnel.
2. Develop relevant teaching tools and methods:

- a. Revise curriculum \$113,000

- b. Adapt and distribute teaching materials and textbooks --

Textbooks: \$1,000,000 from A.I.D. loan (matched by DRGov) to provide an estimated total of 6.7 million primary school books. This will provide 3 books per primary student for each four-year period, plus teachers' guides. (Presently, 280,000 students.)

\$900,000 teaching materials program, to include: basic kit of teaching materials, with annual supplements, including globe, maps, world atlas, dictionary, encyclopedia, scissors, basic science equipment, etc., at unit cost US\$75. Provide kit to each of the 12,000 public school primary teachers.

\$1,985,000. Establish and operate in National Education Center a Textbooks and Instructional Materials Center, which will write and adapt teaching materials and texts for primary and secondary schools;

Prepare and evaluate instructional materials for classroom use.
Assess policy of providing free texts; perhaps install text rental or other appropriate schemes.

3. Continuing improvement of Educational system through problem-oriented research, experimentation and evaluation programs, including:
 - a. \$398,000. Establish research and evaluation programs.
 - b. \$1,757,400 USAID, plus \$1,825,000 HostGov. Establish 8 Primary Schools as Centers for Experimentation programs.
 4. Improve management, Administration and Planning Capabilities of Secretariat of new National Education Center.
Participant training (39 people, abroad) \$310,000
Technical advisors, project implementation: \$776,000
 5. Other Costs of Education Center, not attributable to any of the four departments--including administrative cost: \$100,600.
- i) Ecuador: Primary Education Improvement (518-22-640-027)

Approximate funding:

FY 1966	Education Sector Loan	\$5,300,000
FY 1966-67	(DG)	\$535,000
FY 68	(Loan)	511,000
FY 69-70	(Est--DG)	342,000
FY 1971	D.G.	?
FY 1972	D.G.	?
FY 1972	(Sector Loan, proposed)	\$2,000,000

This program is being conducted to assist the HostGov in improvement of primary education. Project implementation and approach has involved improvement of the curricula in selected normal schools; training textbook writers; and development of manuscripts for high-quality primary-school textbooks.

At present, the program is under review. Current detail can be provided after program decisions are made as to future project scope and direction.

j) El Salvador: Education Development (519-11-690-071)

Funding: DG: FY 55-70	\$4,768,000
71 (Est)	723,000
72 "	283,000

Sector Loan (11/69) \$1,900,000.

Objective of project is to assist Host Gov in comprehensive effort for reform and re-structuring of its educational system, including as key elements:

- extension of level of education to 9 grades
- revising curriculum grades 1 through 12
- upgrading teacher and supervisor training
- improving management of the Ministry of Education
- developing experimental--demonstration educational TV program, starting with primary grades in pilot schools
- develop improved, modern instructional materials as required.

To date, an Instructional Materials Center has been established in the Ministry of Education, and 12 U.S. advisors are being recruited to generate appropriate text materials plus software for the Educational TV program. By late 1971, more than 600 teachers had received professional re-training; work is progressing on organizational improvement in the MOE; complete curriculum revision is in process, with that for 7th and 8th grades completed. Substantial progress has been made on development of the country-wide instructional TV system, and transmission of ITV is entering its third year.

k) Honduras: Education Development (DG) (522-11-690-054)

Funding: FY 65-70	\$1,192,000	Loan: 522-L-017 (1967)	\$7 million
71 (Est)	407,000		
72 (Est)	465,000	(1972)	2 million

This project is assisting the Govt. of Honduras to establish an educational system responsive to the real needs of development in the human resources area. Activities are carried out at the elementary level (indigenous production and distribution of ODECA textbooks) and at the college level (upgrading of

quality of faculty). The primary content of the project is the elementary textbook development and training of elementary teachers in their use.

By mid-year 1971, more than two million textbooks had been produced and distributed. AID had helped in the doubling of elementary school classroom space; and the quantity of graduates from sixth grade was double the number of graduates some ten years earlier.

An analysis of Honduran educational problems led to the approval of a \$7,000,000 sector loan, signed in 1967, with an additional \$2,000,000 loan scheduled for 1972. These loans are being applied for a complete reorganization of the curriculum and administration of the secondary school system; building of a teachers' college and of at least 19 new schools; and equipping these schools with furniture, textbooks and laboratory supplies. Secondary education personnel (including teachers and administrators) are being educated and/or provided further training, as appropriate, both in-country and in the U.S.

An estimate of the specific amount scheduled for instructional materials per se in the loan funding is not presently in hand.

1) Guatemala: Rural Primary Education (520-11-640-193)

Funding:	Development Loans:	I (1968)	\$8,600,000
		II (1972)	\$3,000,000
	Development Grant:	1970	\$265,000
		1971	315,000
		1972	308,000

Project is to assist Government of Guatemala in educational improvement and development, focusing on rural primary education. Activities involved under the grant and loan-funded program will include school construction; revision and modernization of the curriculum to make it more relevant to the nation's current needs; training of teachers and improvement in normal school instruction; and in-country development, production and distribution of needed textbooks and other instructional materials.

m) Nicaragua: Educational Planning and Development (524-15-690-023)

Funding (DG)	Fy 55-70:	\$2,720,000	Loan:	FY 72 (Proposed)
	71 (Est)	374,000		\$6,000,000
	72 "	275,000		

This project provides assistance to the Host Government for both educational planning and educational development. Major emphasis through FY 1971 was on the primary educational level, including school construction and maintenance, community participation in school activities, and on the textbook program, based on ODECA textbooks. Project assistance has been channeled to the Ministry of Education; to a limited extent to University-level Institutions; and to the Nicaraguan Development Institute, for its scholarship program.

Primary school curriculum reform is well along, with revisions to make same more functional, with emphasis on agriculture and practical education. Progress is being made on improvement of educational planning and administration and about 350 additional classrooms have been finished or are nearing completion.

In the sphere of instructional materials, more than 1,300,000 primary textbooks and teachers' guides had been produced and distributed to schools by mid-year 1971; and more than 3,000 teachers given special training in their effective use. Textbook rental library and bookstore programs were created and developed in each of these Institutions of higher learning: National University of Nicaragua; Central American University; and Polytechnic Institute of Nicaragua.

(Ed. Note: (Details of projected program content of the new Sector Loan and breakdown of funding as between instructional materials and other project elements not in hand).

n) Panama: Education Development and Implementation: (525-11-690-127)

Funding (DG)	FY 1967-70	\$578,000
	1971 (Est)	390,000
	1972 (Est)	230,000

This project provides assistance to the Host Government to improve its educational services and facilities, including both qualitative and quantitative gains. A.I.D. assisted in the shaping of a National Education Plan, adopted in 1969. The GOP plans a total investment of about \$236,000 over the next 15 years, including \$42 million from outside sources. The Universities of Santa Maria and Panama are beginning expansion of curriculum and facilities; officials and professionals in the Ministry of Education and the school system are being trained; and the establishment of a Social Science Research Institute is under way.

The long-range program calls for modernization and re-structuring of the primary school curriculum and the production and use of the new ODECA textbook series.

The Primary Textbook Production Program expanded its activities in 1970-71, tripling its production level of the previous year. Some 250,000 textbooks were produced in 1970.

o) Panama: Educational Improvement Sector Loan Program

Funding:	I. (1969)	\$1,300,000
	II. (1970)	8,500,000

The 1969 loan was provided specifically to assist the Santa Maria University to construct and equip the first four buildings of a new campus. While detail is not presently in hand, the 1970 loan will involve further action toward the expansion and improvement of education at all levels (primary, secondary, and higher); upon the construction of facilities; the training of administrators, professors and school teachers; improved educational planning and research; development of modern, relevant curricula; and the generation of manuscripts and production/distribution of textbooks required to assure the effective implementation of the new curricula and educational concepts.

The 1970 sector loan (\$8,500,000) was designed to accelerate Panama's efforts for across-the-board expansion and improvement of its educational system, based on modern educational concepts, from the primary level, through the secondary, and to the Institutions of Higher Education. Elements emphasized include school construction; administration improvement; teacher training; curriculum modernization and expansion; and the development of the instructional materials essential to implementing the curriculum concepts.

(Ed. Note: additional detail on the instructional materials element would help round out the analysis)

P. Paraguay: Education Development (D.G., 526-15-699-095)

Funding:	DG:	FY 1968-70	\$298,000	Sector Loan (1970)	\$4,200,000
		1971 (Est)	248,000		
		1972 (Est)	173,000		

This project is conducted to expand and improve Paraguay's educational system; to assist in requisite planning and research; to develop and/or to strengthen the MOE and the school system; to help build required additional facilities; to revise and modernize curricula at virtually all levels; to train the educational administrators and teachers; and to provide appropriate, modern instructional materials and teachers' guides.

Through calendar 1970, four regional centers had been completed and equipped; 200,000 primary school textbooks were prepared from Paraguayan manuscripts; 14,000 RTAC textbooks had been distributed to secondary-school students; a central library had been established at the National University; and an academic plan had been prepared for establishing an Institute of Basic Sciences at San Lorenzo U campus.

The A.I.D. loan, as implemented, will help to bring rural educational opportunities in line with those in urban centers, through provision of needed school buildings, well-trained administrators, supervisors and teachers, and where feasible, decentralized administration. The re-structured, more practical and relevant curricula and instructional materials to match them will provide a first-time opportunity for Paraguayan elementary students and their parents in rural communities/^{to enjoy}and educational experience both practical and relevant to their own life situation.

Ed Note: Details on activities and funding for the several elements not now in hand.

q. Venezuela: National Manpower Training and Human Resources Development: (529-15-690-013)

Funding:	FY 1962-70:	\$3,245,000
	71 (Est)	417,000
	72 "	391,000

This project channels advisory and training assistance to selected agencies in Venezuela in establishing and developing democratic institutions, and in planning and implementing educational reforms. U.S. assistance has helped target agencies through improving their planning capabilities; in action programs for textbook and library development; and in training youth in special skills.

Ed. Note: funding details for U.S. instructional materials support not in hand).

In 1969-70, the Government of Venezuela itself spent over \$3 million in textbook development (as compared to \$440,000 in 1966). U.S. consultants assist this on-going textbook development program.

B. Near East-South Asia

1. Highlights for the Region

Many of the countries in the Near East-South Asia Region (as formerly defined) have benefitted during past years from A.I.D. bi-lateral project inputs of U.S. technical, scientific and educational know-how embodied in technical books, texts, reference works, periodicals and other printed materials. These printed materials inputs have been accompanied frequently by the training necessary to assure their effective use. Especially interesting or substantial projects have been conducted in India; Iran; and Turkey.

Significant contributions to the process of economic development have been made also, in several country programs, through sweeping educational reform and instructional materials development projects. The largest of these have been carried out in India, where some millions of A.I.D. dollar funding has supported a nation-wide Science Education Improvement program, involving better methods of science teaching; development of abridged versions of the new science curricula available from the National Science Foundation; and the development of appropriate indigenous instructional materials and teachers' guides. Also of major significance in the Indian program is the PL 480-funded low-cost textbook reprinting program, one of the largest book activities with which A.I.D. has been associated. Under this project, administered in India by USIS staff, A.I.D. supports scientific and technical titles, while the USIA program supports texts on the social sciences and humanities. The project, which has been functioning for a number of years, presently generates some 300 titles per year, with a funding input of rupees equivalent to about US\$2 million per year.

Education improvement and instructional materials development programs in Nepal and Afghanistan are of considerable significance, both in terms of project scope and in the association of educational reform with the generation of instructional materials designed to reflect modernized curricula and educational concepts.

2. Illustrative projects involving printed materials for knowledge transfer; and library development

Projects briefed below are illustrative of the significant current or recently-phased out projects involving application of the printed word for the transfer of concepts and knowledge. To the extent data permit, the funding level and role of instructional materials as an element of the total project is indicated. While in most instances specific detail is not available for the printed materials element per se, the examples provide a reasonably significant indication of printed word application in A.I.D.'s overseas projects.

a. Afghanistan: Project for Financial Administration and Implementation.

The commodities element for this project includes provision for textbooks, professional journals and calculating machines. FY 1972, \$23,000; FY 73, \$20,000.

b. India

1. Indian Institute of Technology (386-11-660-150)

Project Span: Fiscal years 1957-72.

Funding: 57-70: \$12,683,000; 71, \$819,000; 72, \$445,000.

This large project has involved U.S. participation over a number of years in the development of major new educational Institutions which rank with leading Asian Institutes of technical education. Since one of the primary goals of this Institute is the development and maintenance of effective current contacts with servicing relationships with India industry, as well as with pertinent Institutions in other nations, the exchange of technical and scientific information using the printed word is a significant element of the project.

US dollar funding has covered a substantial input of demonstration texts and a large percentage of the books presently included in the central Library. (Approximately 30,000 of the 100,000-plus books in the library were provided by A.I.D.--and a similar percentage of the 1,500 periodicals included therein).

c. Turkey: Higher Education Development. (277-11-660-445)
Project Span: FY 68-72.

Under this project, A.I.D. has supported the development of two major modern Institutions of Higher Education in Ankara: Hacettepe University and the Middle East Technical University. The total U.S. assistance package is in excess of twelve million dollars, of which an education sector loan of \$9,000,000 is the major portion. NOTE: This appears to be the only education sector loan A.I.D. has made to date in this region).

The project provides to both Universities consultants to review plans for the development of a number of Faculties; training of professors in the U.S. and elsewhere; development of new curricula; the use of visiting U.S. professors during the initial functioning of new Faculties; and the provision of supplies, books and equipment for libraries and for classrooms.

For both Institutions, the dollar funding covered most of the costs of developing libraries which now rank with the best in the Middle East. Cost of buildings was covered by host country contributions. The grants for library development--primarily for U.S.-source English-language book and periodicals purchases--were \$1,500,000 for METU and \$650,000 for Hacettepe. Books were selected by the University faculties and the library staffs.

As of mid-year 1971, the METU library holdings totaled about 125,000 volumes and 2,500 periodicals subscriptions; while Hacettepe holds slightly

over 100,000 books and some 2,500 periodicals series. It is estimated that the METU library serves some 6,685 students and 815 faculty members; while Hacettepe serves 5,000 students and 882 faculty members. The past year's attendance records were about 240,000 at METU and 100,000 at Hacettepe (due to its smaller reading room accommodations). The year's circulation total for reserve books and home use was roughly 125,000 for each Institution.

A number of actions have been and are going on, with funding from various Foundations, AID and the host Government, for needed library staff training.

d. Other (including regional and central funded projects):

CENTO--Science Book Fund (290-11-691-262) FY 72 funding, \$10,000.

This is a continuing program, first started in fiscal year 1963 with central funding--becoming a CENTO project in fiscal year 1967. Funding has amounted to \$25,000 or somewhat less per year since that date. The project provides a subsidized flow of U.S. technical, scientific and professional books and periodicals, servicing key developmental Institutions in Turkey, Iran and Pakistan, the member nations of CENTO.

Similar centrally-funded science-technical book subsidy services, since phased out, provided assistance to key Institutions in Syria and Egypt. In addition, specialized textbook rental libraries and reference sets of books also were provided to Institutions in India, Afghanistan, and Iran and Turkey. During the period 1963-69, projects of this nature involved about \$200,000 worth of U.S. books.

3. Illustrative projects involving indigenous development of technical and instructional publications; and development of local publishing-production capability.

a. Afghanistan:

Elementary and Secondary Education--curriculum and textbook activity
(306-11-690-091)

U.S. Obligation Span: FY 65-79. (At the request of the Government of Afghanistan, an attempt is being made to accelerate implementation of this project, with completion in June 1977. However, PROP not to be modified, in case accelerated schedule cannot be realized fully).

Financial estimates: \$12,339,000

U.S. Dollars	7,688,000
Country cash (equiv)	1,151,000
UNESCO	3,500,000

Plus host country contributions for MOE unit expenses, teacher training printing of textbooks, distribution, and other local costs.

This project involves the total modernization of the nation's primary school curriculum, teaching techniques and instructional materials. The primary school curriculum and textbook development is one discreet sub-activity, the work ranging from curriculum design and manuscript development through publishing, production and distribution to systematic efforts to assure effective use of the new materials.

Institutional development has been a fundamental element of the program, including structuring in the Ministry of a primary curriculum and textbook unit; support for the development of an adequately-sized educational press; storage warehouses; and a network of teacher-training centers..

Quantitative targets include: 105 manuals; 71 student texts (in language arts; second-language materials; mathematics; practical works; health and physical education; science; and social studies. Printing estimates indicate 13 million books printed and distributed during 1970-76; and 22.7 million during 1977-81, inclusive. (This will supply 3-year stock of books at each initial printing, based on 1969 actual reenrollment plus estimated annual increments of 7 percent through 1975 and 8 percent during 1976-80).

Agriculture education--Faculty of Agriculture, U. of Kabul 306-11-690-092

This project provides assistance for the development of a faculty of Agriculture at the University of Kabul. The project covers the full range of requisite activities, including development of curriculum and teaching materials; recruitment and training of staff, etc. Some of the instructional materials will be purchased from developed countries, but most of them will be developed locally.

(Breakdown of funding inputs not presently available).

b. India

Science Education Improvement (386-11-660-226) (Span 1965-75)

Funding	Total, \$12,659,000	
	U.S. dollars \$7,663,000	(71,325,000; 72,459,000)
	US owned lc. 449,000	(equivalent)
	Host Country 4,246,000	"

This project involves reform in science education, involving new and modern approaches to the teaching of mathematics and sciences at the elementary, middle and secondary-school levels (and also at the University level) based on approaches pioneered in the U.S. under the NSF new science curriculum program.

Emphasis throughout the project is on improving teaching technique and on the application of a variety of modern curricula and instructional materials, including texts; teachers guides; laboratory manuals; and demonstration apparatus--all of which are adapted to local conditions.

The program is channeled through the National Council for Science Education and local "study groups" in various sections of the country. Under the 1972 program as planned, the effort in Bombay will be directed to revising math and science curricula for the city's schools, targeting 500,000 elementary students in 200 schools by 1975; and 1050 schools by 1980. In Rajasthan, NSF

experts will work with the State Institute of Science Education in shaping math and science texts for use in 60 schools by 1975; and in 500 by 1980. In Mysore, A.I.D. will help in developing materials for in-service teacher training (at least 11,000 at the elementary level) and improvement of teaching materials in elementary and secondary science and math. Plans are to produce materials for use in 20 to 25 pilot schools by 1975; and in 550 by 1980.

The Central School Commission program is scheduled to develop grade 1-8 math and science curricula, syllabi and teaching materials for trial use in Delhi, which later may extend to 4,000 CSC teachers and 50,000 students throughout India. At the college/University level, special activities are also underway to develop relevant and innovative courses for engineering and technical training.

Low-cost Textbook Reprint (P.L. 480 rupees)

This large continuing project, using U.S.-owned P.L. 480 rupees, is a joint project with the U.S. Information Agency, administered in New Delhi by staff of USIA. The project is the largest U.S. Government-assisted overseas low-cost textbook reprinting program (in English language). The annual funding level is the rupee equivalent of U.S. \$2 million, plus some USIA dollar funding and other inputs.

Under this program, A.I.D. supports publication of texts and technical books in the sciences and technology, while USIA supports books on the social sciences and the humanities. At the current level of funding, some 300 titles per year can be produced--substantially less than the accumulated demands. (There is reportedly a current backlog of over 1,000 MOE-approved titles awaiting funding support).

Improved Teaching Techniques, Elementary Education (Programmed teaching)
(386-11-640-385).

Plans had envisaged a program initiated in FY 1972, phasing out in FY 1977, at a total U.S. dollar input of about \$2.5 million; use of the equivalent of \$1.6 million in U.S.-controlled rupees; and an as-yet unspecified host country contribution.

The Project agreement and implementing documentation have not yet been signed; and it is not presently known when the project will get underway-- but this will likely be in FY 1973.

Details are not provided at this time, pending program decisions and signing of project agreement.

c. Nepal: Teacher and Technical Education (367-11-610-060) FY 1954-77.

Life-of-project funding:	\$6,779,000	(FY 1971, 463,000; 72, \$267,000)
U.S.-owned local currency	\$4,070,000	(Equivalent)
Host country cash contribution	\$1,686,000	"

This continuing program involves wide-ranging improvements in the Nepalese educational system, including Ministry reorganization; the establishment of a curriculum development center; complete revision of primary and secondary school curricula; increases in quantity and quality of teaching; and sound educational planning.

A portion of the project has involved the development of new instructional materials and the Development of an Educational Materials Center in the Ministry of Education. Efforts to date have resulted in the successful development of the physical plant; the training of personnel; and the development of an administrative structure with the capability for producing all textbooks and other instructional materials required for the primary and secondary schools. As this project phases out in 1972, the Center has produced nearly 2 million pieces in the past two years; and has a feasible annual capacity of 1 million books each year. The program is expected to reach directly 500,000 students and 25,000 teachers.

d. Pakistan: Low-cost textbook publishing (391-11-690-346)

Projected time span: FY 71-73, inclusive
" funding: U.S.\$235,000 (71-72)
" US-owned local currency, equivalent to US\$100,000
" Cooperating country cash input, equivalent to US\$100,000

This project, as approved, covers exploratory operations on a textbook reprint program to demonstrate immediately and convincingly that the nation's severe book production/procurement problems can be solved through the use of Pakistan's own resources, initiative and competitiveness. Assumed for success are proper organization and needed changes in import, foreign exchange controls and some other current policies.

The immediate project goals are:

Assist Pakistani private book industry and/or GOP to obtain appropriate publications rights for local production of U.S. books in reprint and/or translated form, as appropriate.

Actually reprint selected publications for use in on-going and terminated USAID institution-building projects.

Translate and publish U.S. texts in Urdu and Bengali for teachers, educators, scientists, agriculturists and technologists.

The longer-range goals include:

Help the GOP improve its frame of import and foreign exchange relations; and improve the productivity of the Pakistan book industry.

Improve the quality of Pakistan education, through improvement in the quality of texts and reference works available;

Establish expanded textbook development capacity, as required, in existing GOP central and/or provincial planning organizations; and assure improved selection standards;

Improve marketing and distribution of books;

Improve the dialog and relationships between the GOP and the indigenous book industry; and similarly strengthen understanding and relationships between Pakistani entities and the U.S. book industry.

Initial plans and goals specify provision of one U.S. resident advisor and four short-term U.S. experts, with 8 Pakistani participants to visit the U.S. For the initial three-year period, production will include college, University, polytechnic and vocational texts in translations, with printing and selective distribution estimated at 1,000 copies of each title. In addition, rights acquisition and start-up costs for local English-language reprints are to be arranged--for a number of titles not yet specified.

C. East Asia (Excluding Vietnam)

1. Highlights for the Region

Many bi-lateral programs for technical assistance to East Asian nations included in past years substantial applications of printed materials in regional and country projects. Included were particularly-massive transfers of technical and managerial information resources to industrial development centers and some other-sector Institutions in Japan; Taiwan; Korea; and the Philippines; and the provision of new and used books, professional journals and library equipment to strengthen technical reference centers of developmental Institutions in Indonesia; the Philippines; Thailand; Korea and Japan. Indonesia, the Philippines and Thailand also benefitted from substantial collections of U.S. textbooks for the reference shelves of leading Universities and technical institutes.

However, with only one notable exception (library development projects for the Korean Institute of Science and Technology and the new Korean Development Institute) the past large-scale programs involving knowledge-transfer through the printed word are phased out. Current programs in the East Asian region are involving only modest funding for library shelf enrichment or for the provision of technical reference works for U.S. technicians and their host country counterparts.

In several of the countries of East Asia, past educational development programs have involved massive efforts to provide textbooks for the educational systems, which in some instances have involved in-country printing and publishing. One of the largest of these programs--in the Philippines--provided 25 million texts for the elementary and secondary school systems, mostly in English but some in local languages. The printing of these textbooks

contributed substantially to the development of the local industry. Other sizeable textbook programs have been conducted in Indonesia, Laos and Thailand--the latter two presently in their terminal stages.

2. Illustrative projects involving printed materials for knowledge Transfer and library development

a. Current projects (Korea).

Korean Institute of Science and Technology:

The U.S. has supported Korea's efforts to develop a major Institute of Science and Technology, under a multi-million-dollar development loan. A significant element of this project--which is now nearing successful completion--was the provision of a sizeable research library. Many thousands of U.S. scientific and technical books and journals have been and are being procured for the library, together with needed library equipment. The project has also involved training of appropriate specialized personnel.

Korea Development Institute (489-11-790-674)

Funding: FY 1971, \$416,000; 72, \$368,000; 73, \$344,000.

A.I.D. funding support for the new Korean Development Institute includes provision for a research library, including representative writings on the theory and techniques for economic development. U.S. dollar for library materials totals \$268,000 (108,000 FY 71; 160,000, FY 72).

Work on firming book and periodicals procurement arrangements is now in process.

b. Recently phased-out projects:

1) Thailand: Manpower and Educational Development and Planning (493-11-690-142) Approximate total funding \$1,557,000. (FY 1964-70)

This project provided assistance to the Thai Government in improving its educational planning and thereby improving the quality of its educational system--with special emphasis upon higher education. As an important element of the endeavor, A.I.D. and the Thai Government shared equally in

the cost of the provision of carefully-selected U.S. technical and scientific books and journals (including textbooks) for shelf enrichment of the libraries of ten major Institutions of higher learning. Total funding for the purchase of these materials was \$200,000, shared equally by A.I.D. and the RIG.

(Actual procurement is now nearing completion).

2) Indonesia:

During the years 1961-65 an unusually-large library shelf enrichment program was carried out as an element in the A.I.D.-assisted program for higher education improvement. Several hundred thousand U.S. books and journals were provided for 17 major Institutions of higher learning. This program was interrupted by the suspension of the A.I.D. program preceding the overthrow of the Sukarno regime; but the high priority accorded to U.S. books by Indonesian academic and technical leaders led to a renewed flow of U.S. technical and scientific text and reference works during the years 1966-71, partly through Indonesian bi-lateral program funding and partly under a centrally-funded A.I.D. book project.

The provision of U.S. books was carried out through a variety of approaches, including: a selective University library shelf-enrichment program targeting 12 key multi-faculty Universities (patterned after the earlier project); a selective textbook rental system installation; and a systematic subsidized inflow of scientific, professional and technical books and journals targeting a group of 40 of the leading Indonesian scientific, technical and academic Institutions, under an Academy of Sciences project which involved cross-indexing and inter-Institutional loan.

The book flow projects were accompanied by efforts to strengthen Indonesian University Presses; the training in the U.S. of over 70 leaders

of the Indonesian book publishing industry; technical advice to and training of staff personnel for some of the leading Indonesian University libraries; and in-country training of a sizeable group of Indonesian textbook writers.

Estimated total funding for the above activities involved several hundred thousand dollars during the period prior to A.I.D. suspension; and somewhat more than \$300,000 during the implementation period 1966-70.

3. Illustrative projects involving indigenous development of technical and instructional publications; and/or development of local publishing--production capability.

a. Korea Education Sector Loan: \$10,000,000.

An education sector loan is proposed to support Korean efforts to institute an increasingly-efficient educational system, at all levels, which will involve maximum feasible application of Educational technology. A variety of instructional materials, including printed software, will be involved.

DG funding: Education Development (489-11-690-684)

This project provides for needed ancillary technical services related to the shaping of the long-range education loan-funded educational improvement project. The DG project emphasizes the necessary planning assistance, involving the development and application of revised curricula and new forms of instructional materials for the proposed new educational systems.

b. Laos Educational Development (439-11-690-064)

Education materials production element Funding:
FY 1964-68, \$604,000; 69-70 (?); 71-72 \$68,400 plus \$13,600
from refugee relief project.

This element of the Laos educational development project provides textbooks and supplementary instructional materials for both the elementary and secondary education systems and for teacher training. The project is scheduled to provide every Lao child in grades 1-6 with at least one basal

textbook per course, plus the requisite teachers' manuals--all in the Lao language. The quantitative target is 50 titles, and a total of 1.4 million textbooks.

In the early years of the project, all of the texts were printed by A.I.D. on contract outside the country. In more recent years, however, the printing has been done mainly in Laos itself. (For example, in 1971, some 300,000 copies of 34 elementary, secondary and teacher-training texts were printed in Vientiane. This total included 150,000 reprinted copies of 11 elementary texts in reading, arithmetic and geography; 40,000 copies of ten new Lao texts for all subjects in the eighth grade; and 110,000 copies of 13 small teacher-training texts, dealing mostly with teaching methods, child development and classroom management.)

Plans for FY 1972 schedule about the same level and type of new printings and reprinting activity. In addition, Laotian funding will be used to purchase some French-language texts.)

c. Thailand Rural education and training (493-11-640-162)

Funding: Total, \$10,227,000. 1967-70, \$8,302,000; 71, \$975,000; 72, \$850,000; 73, \$100,000.

This project develops instructional materials and trains Thais to develop them. The new materials are shaped to sharply-revised curricula to meet the needs of the rural areas. It provided commodity assistance needed for textbook production; for education of 4,000 youths and adults each year; and in-service training for 500 teachers and school principals each year. It also provides specialized vocational training, through the use of 54 mobile training units.

While separate dollar cost data are not available, the printed instructional materials element in the Thai program is a major item. The results reach 101 upper elementary schools; 39 district-level junior high schools; and new comprehensive high schools in the critical Northeast area of Thailand.

Five million textbooks had been completed and distributed by the end of calendar year 1969, with a target of 9 million by the end of calendar 1971. Under a contract component, training had been given to Thais in the writing and production of new and modern programmed learning materials in common school and technical school subjects. The project goal specifies 1.5 million programmed texts to be published and distributed by the end of calendar year 1971.

d. Regional

During the years since its founding in 1961, A.I.D. and predecessor Agencies has supported the regional technical information program of the Asian Productivity Organization. This program is based mainly upon the development and diffusion of managerial and technical information in the form of brochures, manuals, digests and books. (In earlier years, a technical enquiry service was also provided, but was terminated circa 1968).

The most recent substantial financial and technical support for APO's technical information program was provided in fiscal years 1967-1971--a total of almost a half million dollars, including program support and technical advisory services.

During 1969-70, A.I.D. helped the APO to set up a manuscript-development and book publishing program (based largely on commercial publication and distribution) to provide quality books specifically directed to the needs of the member countries of the Asian Productivity Organization--but

of likely value to other nations, both LDC's and those more developed. By early calendar 1972, about 30 titles of general interest will be available; and the foundation should be laid for effective continuing commercial publishing, printing, warehousing, distribution and sale.

Through another regional entity, the Southeast Asian Education Ministers' Organization, A.I.D. is supporting the work of a new instructional materials project (INNOTECH) established to conduct research and to develop appropriate multi-media instructional materials for use in new educational approaches in the region. It is expected that this program will involve the provision and testing of a variety of printed and audio-visual materials as software for future technology installations.

D. Vietnam

1. Printed materials for knowledge transfer; and library development.

Since the beginning of U.S. economic development assistance to Vietnam, the transfer of knowledge and concepts through the application of printed materials has been a significant element of the program, especially in the industry, agriculture, public health and public administration sectors.

At the request of the Government of Vietnam, A.I.D. has in past years provided major assistance in the teaching of English as a second language, to enable the Vietnamese to capitalize upon the wealth of printed technical, professional and scientific information available in this world language. Under the English-teaching program, more than 30 man-years of professional advisory services were provided, plus a series of Summer Institutes of Linguistics which ran for some five years. Under the English teaching program, it is estimated that a total of between 250,000 and 300,000 texts have been purchased by A.I.D. and its predecessors for use in Vietnam's schools. Assistance was also provided for the printing of several thousand texts in Vietnam.

Library development has been of increasing significance in the Vietnam program, as capability for use of publications in the English language has increased. A number of specialized developmental Institutions received such assistance over the years. More recently, the library development program has focused on the Vietnamese educational system, providing books and journal subscriptions, as well as the training of librarians and library administrators. This effort, which fills a major gap in needed educational resources, ranges

from classroom learning resources centers in the elementary schools through secondary schools to the technical institutes and Universities, for central and appropriate departmental libraries. Under this activity, A.I.D. provides a full-time U.S. library advisor; and has funded visits by several short-term advisors on specialized aspects of library development, under the contract with the American Library Association.

Program targets for FY 1971-72 project the establishment of 24 new library units in the secondary school system, equipped with some 20,000 textbooks and 600 library reference works, at a cost of about \$135,000. Over 30 Vietnamese participants are being trained in accelerated teacher/librarian training courses; and a limited number of key personnel are being trained in the U.S. in high school library administration.

In the higher education area, libraries are being built or strengthened for the National Library; the Universities of Can Tho; Saigon, Hue; Dalat; and Van Vanh; the Oceanographic Institute; and the Atomic Energy Research Center. Project data show the total purchase of about 46.5 thousand books, at a cost of roughly \$67,000.

Also in the higher education area, A.I.D.'s public health division has assisted the Government of Vietnam through the provision of some \$285,000 worth of U.S. medical and dental textbooks to provide the beginning of a revolving text book purchase program, which will assure comparatively low unit costs to students; more reliable delivery of books than in the past; and lower overhead charges.

At a later date, assuming curricula and higher education policy of GVN so dictate, the extension of this procedure to other academic disciplines might provide one way for improved educational quality.

2. Printed materials in Vietnamese educational development

The educational system in Vietnam had to start, almost literally, from zero in 1954, when the Republic of South Vietnam was established. The U.S. Government began assistance for Vietnamese educational development and improvement in 1955, on a limited basis. Aid involved mainly some teacher training; work on establishing a few new schools; and a limited effort to develop Vietnamese-language instructional materials and teachers guides' for the elementary schools.

In 1962, following a nation-wide survey confirming the Vietnamese peoples's priority on education, AID responded to an urgent RVN request for expanded educational assistance. Efforts during 1963-68 focused on rapid expansion of school facilities (elementary, secondary and higher education); upon the rapid expansion of the trained teacher corps; on the development of a new national education system; and on a tremendous expansion in the provision of instructional materials. U.S. educational assistance eventually covered teacher education; vocational/technical; agricultural and higher education, as well as the elementary-secondary school system.

Elements in the assistance program have included since calendar 1969 an intensified effort for modernized curricula and educational methods, plus long-range educational planning and re-structuring of the system's administration. A major element in U.S. assistance has been support for the Ministry of Education's plans to develop a modern Instructional Materials Center as the heart of its expanded instructional materials effort. Plans have been laid for expansion and increasing the capability of the Vietnamese educational publishing ^{and printing industry} /as the major source for future education materials; ~~publishing industry~~ but to date its very limited

capability and low quality standards have forced major reliance on overseas contracting for the massive input of textbooks involved in the educational-development program.

As the result of this massive effort for educational development, in the 1971-72 school year, 2.7 million children are enrolled in the elementary schools (over 90 percent of the eligible age group); more than 700,000 youth are enrolled in secondary schools (almost 30 percent of the eligibles); and 14,500 students are enrolled in 28 technical--vocational schools. Over 23 million elementary school texts had been produced offshore; and more than 400,000 secondary texts are being printed overseas. Beginning late in calendar 1972, the new IMC plant can produce roughly 1.5 million texts per year. (Total textbook needs during coming years are projected at some 10 million per year, with the majority proposed for production by the private-sector educational publishing industry). The Ministry is presently studying preliminary suggestions for new approaches to meet the provision of needed instructional materials in the future, including ways of assuring effective sale of texts to the students and for improving quality and building capacity of the educational publisher's facilities to meet projected needs.

During the years of its support for GVN's educational development program, A.I.D. has assisted in the instructional materials area in a variety of ways--and with funding at a level probably exceeding that for any other country with the exception of Brazil and (perhaps) other Latin American nations who are recipients of relatively recent education sector loans. Under contracts with several U.S. Universities; with direct hire personnel, and in other ways, A.I.D. has stimulated and provided expertise for the complete re-structuring of elementary and secondary school curricula, upon which the new instructional materials were to be based. It has assisted through both long-term and

"crash" programs for training textbook writers. A major program involving a committee approach to the writing of the needed new elementary and (more recently) secondary school textbooks was largely funded by A.I.D.; both US and Vietnamese writers were involved. Complementing the development of textbooks has been the production and use of teachers' guides; the production of several thousand teaching kits for hamlet school classrooms; and a film on how to use a textbook, which was used several years ago throughout South Vietnam--and should probably be used again from time to time.

In more recent years, instructional materials development assistance was extended to the vocational/technical and teacher-training fields; and study is presently being devoted to possible effective approaches to materials for the Universities.

Specific commodity and technical assistance was provided for the structuring of an initial Instructional Materials Operation (using mainly used equipment, in an old building). More recently, A.I.D. has supported efforts by the GVN to build a sizeable new IMC building; and has funded the procurement of needed U.S. machinery and equipment. Under this project, also, specific technical training is being provided staff for the new facility, to assure technical competence to handle the specialized new equipment provided, including a complicated typesetting machine.

The Instructional Materials Center operation, when fully functioning, is proposed to provide not only leadership-type book graphics, layout, editing and quality printing, but also to supervise the ~~necessary~~ contractual arrangements with textbook writers and the private-sector book industry for the publishing, production, sale and distribution of the needed texts. It will not, however, play any professional role in manuscript development ~~per se~~.

Total funding provided by USAID under past and current projects for the development of instructional materials has been large. Funding for producing the approximately 25 million elementary and secondary school books which have been and are being procured offshore is estimated in excess of 6.5 million dollars. The costs of U.S. expertise, support for building, purchase of machinery and equipment, staff training, etc. for the IMC operation will fall between 1.5 and 2.0 million dollars. The costs for the U.S. input into elementary and secondary-school textbook manuscript writing, under the committee approach, was most substantial; but specific figures are not available. Total costs, present and future, for the production of technical/vocational, agricultural and teacher-training texts will be a significant item; but specific cost estimates are not available.

In quantitative terms, the instructional materials activity has now been involved in the development of a total of 37 elementary textbooks since 1964 (which included the updating of some of the titles produced earlier). Many texts now 5 years old or more require early revision. Despite a total U.S.-funded production of 24 million elementary school texts, the future instructional materials requirements are heavy--estimated at perhaps ten million new and replacement books each year, as earlier printings are worn out and go out of date. Costs have averaged roughly US 25 cents per book.

At the secondary-school level, the proposed curriculum requires a minimum of 50 titles to properly supply the seven grades, with an estimated need for 50,000 copies of each title--or an initial 2.5 million books, plus future-year replacements. To date, however, the USAID-assisted instructional materials program will by the end of fiscal year 1972 have produced and printed overseas only about 15 titles, and a total of 420,000 books--less

than one-sixth of the estimated current textbook requirements for the secondary system. Production costs are averaging about US\$1.00 per book.

In the field of higher education, relatively little has as yet been done by GVN and USAID in textbook development or production. An activity of likely relevance for GVN efforts in this field is the availability of Vietnamese translations of over 30 U.S. technical and professional books, suitable for use in courses at the University level, which were translated under Department of Defense contracts for use in the academic program of the Vietnamese National Military Academy. Copies may be purchased for use in other Vietnamese Universities.

Consideration is being given to other approaches to meet anticipated text needs in the Universities, for materials in both English and Vietnamese. (Some broadening of the medical-school subsidized textbook-purchase plan may be considered in this context).

In teacher training, projections indicate the manuscript development and printing of 8 basic titles in FY 1972, and an additional 8 in FY 1973. The average print runs are not expected to exceed 10,000 copies per title. The average cost per book, whether produced locally or overseas, would likely exceed \$1.00 per book. Future plans also call for the translation of selected developed-nation materials into Vietnamese for use in teacher education; but the size and shape of the effort can be determined only after the assignment of a U.S. instructional materials advisor. Some future indigenous teacher-education textbook writing is also expected.

A series of instructional materials activities have been involved in the expanding technical/vocational and training program, which is of increasing significance to the future economic viability of the South Vietnamese nation:

1. The technical school directorate has set up a printing plant of relatively good quality, to produce materials for use in the technical schools.
2. Under USAID special-fund support, some 1.2 million piastres have been provided during the years 1967-71 for the costs of preparation of vocational education texts by qualified Vietnamese professionals. USAID advisors, funded under the technical/vocational education assistance project, have worked with these Vietnamese.
3. Substantial amounts of U.S. dollar and piastre social welfare funds have been provided for the production of high-quality instructional materials, suitable for effective use by both Vietnamese instructors and teacher-trainees. These materials include curriculum and lesson plans; audio-visual instruction aids; and worksheets, covering seven subject areas.
4. A substantial amount of U.S. instructional materials are being imported, with US advisory assistance in selection, procurement and placement. These items range over a number of skill areas.
5. For some years, Vietnamese technical/vocational teachers have been trained in the U.S. in the development and use of job sheets and other instructional materials. This training has assured not only capability for effective classroom use, but also for future production of needed materials.
6. For several years, terminating in FY 1968, each U.S. expert brought to Vietnam for work in technical education was instructed to take the time to develop a Vietnamese-language text in his field of specialization, as a joint project with his Vietnamese counterparts. A number of such texts have been developed.

A conceptually and operationally separate phase of Vietnamese education in the vocational/technical sphere is a large-scale, non-formal program of short and medium-term training, conducted outside the formal education provided in the 28 technical schools. A number of Ministries are involved, including Defense; Labor; Interior; Social Welfare; Economy; Public Works; Communications and Transportational Services; War Veterans; Agriculture and Fisheries; and Education. An Inter-Ministerial Manpower Coordinating Committee (relatively recent) meets to shape manpower projections and needs, and to coordinate the various training programs. A recent estimate indicated a total of 80,000 persons being trained each year in public and private courses.

While these programs are outside the formal vocational/technical educational system, the Ministry of Education actively works with and supports these efforts; provides the services of its teachers for night and other courses outside the regular school hours; and makes its classrooms available as much as is feasible.

This non-formal education--training program involves both Vietnamese and foreign experts for the development, adaptation, abridgement and printing of instructional materials--which must generally be available in the Vietnamese language. Two major U.S. firms have been heavily involved in the training program, under contracts with the US. Defense, Labor and Education programs.

No precise figures are available either as to the total number of the course outlines, leaders' guides, workbooks, etc., developed and used in these programs, or the cost of producing them. It is obvious, however, that both totals would be large. Unfortunately, there is no central facility for

collection of materials developed, nor has any effort been made to do so. In order to avoid continuing--and future--duplication of effort and overlapping in materials generated, attention should be given to collecting and analyzing these materials, for future reference.

E. Africa

1. Highlights for the Region

During the past years a number of the African nations benefitted from sizeable inputs of U.S. technical, scientific and professional know-how embodied in a variety of print media. Nigeria, Ethiopia, Kenya and the Mediterranean countries benefitted especially from knowledge transfer under the industrial, agricultural and health programs.

Of particular significance in past projects were the library development elements of bilateral projects structuring Institutions of Higher Education in Nigeria; Ethiopia; Ghana and Kenya.

During the years 1962-69, a Regional Technical Aids Center provided French editions of U.S. books and other technical and administrative-use publications. Funding for this project, initially located in Rabat and re-located in Paris, averaged roughly \$200,000 per year.

The national growth process of the nations of Africa South of the Sahara has been aided by a variety of sizeable educational development and training activities, involving the indigenous development and use of texts and other instructional materials. In addition to bilateral country programs, regional programs have blazed new paths in the development of elementary math and science materials, appropriate to the needs of the students in the region. These programs have generated textbooks, teachers' guides, workbooks and other instructional materials suited to ready translation, printing and use in individual countries.

A.I.D. is presently working with African nations in follow-up work for the adaptation of these materials and the development of finished manuscript or camera-ready copy for in-country printing in cooperating nations. Even

though most of these countries are altogether deficient in quality educational publishing, printing and distribution industries, A.I.D. reportedly has not yet taken any action to help build or to strengthen indigenous capability in these areas. Attention to this deficiency might pay dividends in more facile conduct of future instructional materials projects.

2. Illustrative current projects involving printed materials for Knowledge transfer; and library development

a. Africa Regional

Family Planning Courses at Health Training Institutions (698-11-580-359)

This project, designed to introduce effective courses in family planning in the curricula at selected Health Training Institutions, involves a significant amount for procurement of U.S.-source instructional and reference materials. FY 1971, \$80,000; 72, 64,000.

(Several other Regional projects for Africa refer to funding for books for classroom use and for library development, but funding is not specified).

b. Ethiopia

University facilities (Haile Selassie I University) (663-22=660-143)

Loan: Phase I: \$1,000,000; Phase II, \$3,000,000.

This is a new education sector loan project, which follows up on earlier development grant projects provided to facilitate the development and improvement of Haile Selassie I University. The proposed loan will cover costs of the purchase of \$375,000 worth of U.S. books and journals and library equipment valued at \$500,000, for the John F. Kennedy Memorial Library and its subsidiaries.

Comprehensive Secondary Schools (663-11-650-135)

Total funding: 1962-69, \$1,040,000; 70, \$207,000; 71, \$178,000; 72, \$119,000

This project is designed to provide upgrading of the scope and quality of education in 16 secondary schools, including vocational and practical business arts training.

Under the project, A.I.D. is providing a basic library of reference works and sample texts to each school. (Funding level not shown).

The Host Government is responsible for operational support, including staff, facilities, instructional materials and supplies, equipment maintenance, and services.

3. Illustrative projects involving indigenous development and use of technical and instructional publications; and/or development of local publishing/production capability.

a. Regional:

1) Africa Primary Science Program (698-11-690-357)

Life of Project: 1965-72. Funding: \$2,805,962, cumulative 65-71

310,000 FY 1972

Ford Foundation (1964): \$218,000

The African Primary Science program was conceived and developed to provide in African primary education a science element which would be relevant to the children's own lives and environment; and to evoke the children's interest, ideas and action in acquiring knowledge about the world in which they live.

The project concept evolved during the early 1960's. Actual developmental work began in 1964 under a Ford Foundation grant. A.I.D. funding support has been provided over an eight-year period, 1965-72, through a contract with the Education Development Center of Newton, Massachusetts.

An initial center was established under the umbrella of the Ministry of Education in Nairobi, Kenya. Under the program concept, this and other country science centers served as the local institutional framework for the developing activity. Subsequently, State Centers were established in Nigeria (4); Ghana; Malawi; Sierra Leone; Tanzania; and Uganda. More recently, other African nations have become involved in participation with the program and are using or planning to use some of the materials; but have not established formal science centers. Included are Ethiopia; Zambia; Liberia; Botswana; Lesotho; and Swaziland.

In 1970, the "Science Education Programme for Africa" (SEPA) was established to carry forward the program, with membership open to any country in Africa which accepts the SEPA Constitution and pays specified membership dues. Headquarters are in Ghana.

Over the years, this program has involved a variety of U.S. educators and African educators with specialized skills. The approach has involved research and the development of a body of teaching materials to serve as curriculum building blocks, easily adaptable to the varying needs of each of the participating countries. These curriculum materials range in size from four pages (mini-units) to teachers' guides of sixty-four pages. The booklets demonstrate an inexpensive and practical way to produce printed instructional materials. The five categories of these program materials are: teachers; guides; pupil's texts; science library readers; mini-units; and teachers' background books.

Such materials are accompanied by a series of monographs describing the program; its administration; ways of teaching; ways of evaluating; and possible teacher-training models.

At the conclusion of the research and development phase, the portfolio of curriculum materials consisted of fifty-four printed units; nine working papers; three printed monographs; and two working papers. A "Teachers Guide to the African Primary Science Program" is in preparation as of the fall of 1971.

While many of the materials are being produced in initial quantities of 5,000 copies or more, the basic intent is to provide reproducible or adaptable materials (through film positives) for in-country printing by the member nations. (In this connection, see project "improvement in Curricula and Instructional Materials, Botswana, Lesotho and Swaziland) immediately following).

2) Improvement in Curricula and Instructional Materials
(Botswana, Lesotho and Swaziland) FY '72, \$390,000.

This project provides for support to the Host Governments in use of the instructional materials generated under the Primary Science Education Program. Under this sub-regional project, the prototype materials received from SEPA will be adapted, abridged and modified as required for use in the schools in each country; and reproducible manuscripts will be developed. U.S. experts will work with and will train African counterparts for future handling of similar activity.

NOTE: The project does not cover the actual printing and distribution of the texts and related instructional materials--reportedly to be handled by the Host Country Governments. (The realism of this assumption could be verified).

3) African Mathematics Program.

Funding: Cumulative through 1970: \$192,000; 71, \$390,000; 72, \$300,000.

The goal of this project is the facilitation of in-country adaptation and production of mathematics instructional materials for the school systems, utilizing the results of the research and development program carried out in earlier years under the large "Entebbe mathematics" program assisted by ICA and A.I.D.

Under the present project, appropriately-adapted book manuscripts-- including artwork and other visualizations--will be edited and prepared to the camera-ready stage, for in-country printing.

Responsibility for funding and arranging for in-country printing and distribution is vested with the Host Country. Comment: For some African nations, the local industry is not likely to be able to handle such work, without some development assistance. Sub-regional approaches might be explored.

b. Nigeria

- 1) Advanced Teachers' College, Kano (620-11-660-732) Funding: 1963-68, \$3,117,000; 69, \$997,000; 70, \$656,000; 71, \$602,000; 72, \$65,000.

This project is designed to assist the major expansion of primary teacher education activity directed to the Northern States. The Kano Teachers' Training College will play a major role in this activity.

The assistance effort involves teacher training; curriculum development; the construction of facilities; the acquisition of existing teaching materials and equipment; completion of the library and installation of a language laboratory; and the development of new instructional materials.

The amount applied for the purchase of existing teaching materials and for in-country development of instructional materials is not available in detail. Similarly lacking is data on the cost of the library development.

2) Institute of Education, Almadu Bello University (620-11-660-778)

This is a project to prepare and distribute curriculum materials to Institutions of higher learning in the Northern States; to train teachers; and to assist in program of curriculum report.

c. Tanzania

Educational Materials and advisory services (621-11-690-065)

Funding: FY 65-70, \$556,000; 71, \$200,000; 72, \$100,000.

This project provides U.S. books, literature and teaching equipment to key areas in the education programs of Tanzania. The project also funds the cost of advisory staff members responsible for the planning, direction and implementation of the program.

A correlary objective is the establishment of an in-service training program to upgrade the capability of 350 teachers each year. (No breakdown on funding as between advisory staff salaries and literature purchases.)

THE ROLE OF TECHNICAL INFORMATION
IN DEVELOPMENT

* * * * *

Approaches to Assuring its Effective
Diffusion and Use

"Information is the key to man's future...society must learn to use it effectively. Scientific and technical information is closely linked with economic growth....

"The diffusion of information through the scientific and technical community facilitates effective progress in research and development;

"Information transfer offers industrial management the chance of taking optimal production decisions on a sound basis...

"economic growth is a human phenomenon and there is an obvious inter-action between scientific and technical knowledge and the socio-economic structure...

"knowledge is global....no field of science or technology is limitedⁱⁿ/interest or applicability to one nation only... the nations must inter-communicate..(with) a balance between national in-and inter-dependence...the system must be provided in relation to special national needs"^{1/}

Technical information, broadly defined, is a development tool which involves a variety of non-personal resource materials and services based on the printed word and on audio-visuals. Technical information services have a fundamental

^{1/} Information for a Changing Society: Some Policy Considerations. OECD (Paris), 1971.

role to play in both regional and country development programs. These media constitute a potential channel of major significance for a continuing positive flow of U.S. technical, managerial and developmental know-how to our IDC neighbors (with or without the existence of other forms of development assistance) and for the return flow of a fund of knowledge to enrich our own society.

In their application, technical information--or non-personal resource materials--can and have played a variety of roles in U.S. development assistance efforts. Services based on printed and visual media have served, in themselves, as a positive tool for knowledge and concepts transfer for economic development, and have solved or facilitated the solution of large numbers of specific technical and conceptual problems. Non-personal resource materials also play a significant supportive role for the education and training of IDC participants studying in the U.S. or in third countries, both during the period of their study and after their return to their homeland.

Further, technical information backstopping and reference materials constitute an essential tool for U.S. and IDC experts engaged in specific technical assistance projects overseas. With the resource materials which can be provided, substantial time can be saved in preparatory and analytical work; and the actual work of the expert is made more effective. Also, with an appropriate supply of technical resource materials, a properly-trained person (knowledgable in basic training techniques) can provide specific training and advice even for subject areas in which he is not himself expert, thus reducing program costs and greatly extending his usefulness.

Of possibly even more ultimate significance in the development process, technical information materials in printed form add an audience and time dimension to development assistance activity which cannot exist in their absence. Properly diffused and effectively utilized, know-how embodied in a single printed document may reach hundreds or even thousands of individuals over a period of years; and in some instances can transfer thoughts from one generation to those in the future.

Subject matter of past and current programs of A.I.D. involving technical information media cover all sectors, and all aspects of the national growth process. The information being provided ranges from the most esoteric appraisal and exposition of potential communications and manufacturing applications of space-science-generated miniaturized electronic components, through training programs based on printed course outlines, leaders' guides, texts, and audio-visual supportive materials targeting supervisory, vocational and middle-manpower skills, to plans and detailed specifications on how to make, install and use a bamboo pump for a village pure-water well--or the famous hand-operated washing machine introduced overseas in the early 1950's by ICA technicians Virgil Pettit and Dr. Katherine Holzclaw.

The application of technical information resource materials in past U.S. development assistance efforts has been somewhat variable, with the most effective and intensive application in the European Recovery Program covering the years 1949-55. Presently, useful but quite-limited information and materials backstopping services are being provided by AID/Washington for overseas bi-lateral programs and projects in several sectors, including public health; agriculture; labor; housing; and a much larger services program for population control. For industrial technology and industrial development

(formerly the largest single user of technical information) present backstopping is extremely modest.

Technical information, primarily in printed form, also is being transferred overseas through the work of A.I.D.-supported Universities and other private entities working on U.S.-financed development assistance programs; and by a large number of private voluntary Agencies whose activities are supported in a minor way by A.I.D.

The U.S. Government is also involved directly or indirectly in the technical information activity of several regional organizations, such as the Organization of American States; the Asian Productivity Organization; and SEAMEO. In addition, of course, the U.S. Government contributes a major portion of the funding of a number of multi-lateral Agencies, both directly and through its contributions to the United Nations. These Agencies, in turn, provide a significant range of activities involving extensive use of technical information resource materials and services.

In addition to the knowledge transfer involved in information backstopping services such as those cited above, a major flow of U.S. technical, professional and specialized know how embodied in the printed word is being applied overseas, in appropriately-adapted form, in U.S.-assisted LDC programs for both formal and non-formal education and training, at levels ranging from the primary grades through the University--and both in the classroom and outside it. The printed word here involved is essentially the entire range of instructional materials and teaching aids, including textbooks; curriculum and course outlines; teachers' or course-leaders' guides; reference works; programmed instructional materials; organized school or classroom libraries and reference centers; and in other ways. U.S. educational

materials are, variously, used in their initial or in reprinted English-language editions; in direct translations to local languages; as adaptations or abridgements; and as source materials for content of text materials written to meet specific local conditions. (It is generally agreed in educational circles that the higher the educational level, and the more demanding the technical content the more appropriate the use of the printed materials in the original language.)

Further, according to the policy intent expressed by A.I.D. Administrator Hannah in January 1972, the U.S. Government will become increasingly supportive to organized efforts to develop and to ensure the effective functioning of knowledge-transfer mechanisms and networks, likely global in scope; and involving the latest and most efficient computerized and electronic transfer techniques.

The key to the ultimate effectiveness of any such networks for the economic development of the LDC's is agreed to be the development of the requisite local institutional capability to handle the sophisticated techniques which are certain to be involved in the global networks now being planned. Involved are equipment (and know-how to operate it) for the electronic transfer of the printed word, based on compatible-computerized approaches; the prompt and effective screening of incoming materials appropriate for local use (a highly-demanding professional assignment); any requisite translation; storage for ready retrieval--accompanied by any specialized cataloging to meet the local requirements; facilities for rapid and sure retrieval; and (above all) the professional competence and imaginative

approaches requisite for the truly-effective diffusion and use of the materials in the nation.

For many--probably most--of the IDC's, a major inflow of both capital and technical expertise will be required to develop the equipment and competence to handle such planned systems. Without such local capability, however, these countries could not capitalize upon the highly technical and most advanced knowledge being transferred through such systems. Without such information the spread between the more developed and the less-developed nations would increase rather than diminish. Hence, this appears a matter of high priority both for the U.S. and for other donor nations.

Useful guidance on the role of technical information and services, properly utilized, in the process of technical assistance for IDC's was provided some years ago by the Stanford Research Institute in a report to the International Cooperation Administration,^{2/} at a time the Agency was re-gearing its industrial technical information program, moving away from servicing the industrialized European nations, toward a program of service appropriate to the requirements of the developing nations of Asia, Africa and Latin America. While some of the details of the SRI report are now outmoded by time--and were related primarily to the industry sector--major conclusions and guidelines set forth by the authors are basic; effectively expressed; and seem generally pertinent to the present situation, status and problems of the U.S. development assistance program. If, as is recommended in the present document and in a recently-completed study submitted to the Technical Assistance Bureau's Office of Science and Technology by the National Academy

^{2/} "The communications Approach to Technical Assistance, with specialization to the Industrial Technical Aids Program", by J. Benjebberman and Robert L. Woodcock, Stanford Research Institute, July 1956.

of Science,^{3/} the Agency ultimately concludes that additional emphasis should be placed on non-personal resource materials and services, the SRI guidelines would warrant careful current consideration. Hence, certain highlights are presented herein:

"The Communications Problem"

1. In its technical assistance function, ICA is basically a communications Agency, in the broadest sense of the term, to provide technical know-how....but it makes too little use of the tested communications techniques and media which have helped build America.

"2. There is an indicated need for a greatly increased flow of technical aids (as distinguished from experts and the knowledge they carry in their heads). Such aids are books, manuals, pamphlets, films, slides, radio programs, technical question-and-answer services. Both for the information they contain and their effectiveness in communicating that information, they are useful in the following ways:

- a. They make it easier for an expert to do his work faster and better. In one USOM, it was estimated that the 400 experts there are operating at 30-40% efficiency because they do not have the communications tools to get their story across.
- b. The availability of technical backstopping on specialized subject matter makes entirely practicable the use of generalists in the field, rather than specialists who are limited to one or two subjects each. This meets more effectively the varied program needs in the underdeveloped areas, and it also makes recruitment easier.

^{3/} "Scientific and Technical Information for Developing Countries." Report of an ad hoc Advisory Panel of The National Academy of Sciences, John Green, Chairman. March 1972

- c. There is a strong "multiplier" effect in printed technical materials available for volume distribution. Much of this material is "handed on" in one way or another, increasing the dissemination of technical information far beyond what a technician could hope to achieve by his personal contacts alone.
- d. The availability of basic materials such as supervisory or specialized managerial training makes it possible to undertake program activities which might otherwise be beyond the resources of the program in many USOMs, especially in the smaller countries.
- e. The technical aids are by their very nature impersonal and objective, and thus the quirks, variations, and difficulties which often occur in a person-to-person relationship are largely avoided. This becomes increasingly important as programs expand beyond the availability of qualified people for USOMs.

"3. One of the elements which make a country "underdeveloped" in the first place is that it lacks a developed communications complex, i.e., mass communications, private organizations, schools, telecommunications, mail service, roads, and transportation--everything that helps ideas and facts flow to the man who can use them. The communications complex of a country must be at least good enough to meet the needs of the technological development being undertaken or that effort will be frustrated and ineffective. If ICA is to help a host country develop its technology, it must help this communications complex by conscious planning. And the very use of the techniques of communication will not only help improve this complex but will meanwhile broaden greatly the effective reach of the American technicians.

4 Operating Principles

"Six basic principles and 14 operating guides, based upon these principles, are suggested for technical information divisions in ICA:

"The Basic Principles

"1. Materials must be localized to meet best the great and yet often subtle local differences which compound the intricate communication process in underdeveloped areas.

"2. Materials produced in the United States must be kept flexible, so they can be adapted to local situations.

"3. Host-country persons must be involved as deeply as possible in the production and dissemination of technical aids.

"4. There must be easy and quick access to technical information, both in the field and in Washington.

"5. Any "backstopping" which can be done in the United States should be done there, rather than left to the field, to free the high-overhead field staff for the jobs which can only be done in the field.

"6. The host-country governments and people must be increasingly motivated to want technical information because they understand its usefulness.

"The Operating Guides

"1. Materials prepared in the United States should be "prototypes," the basic product so designed as to include all the elements which should be useful to the ultimate recipient, but clearly intended as a sample from which someone in the local situation can then develop a finished product to take into account all the pertinent local conditions, including translation.

"2. Translations are not especially useful, and often harmful, in technical matters at professional levels; on materials for general use, however, translations are not only necessary but must be done locally (with the possible exceptions of regional translating activities for Latin America, the Arabic-reading nations, and the Overseas Chinese).

"3. Because so many local variables make it impossible for a central office to determine which medium will be most effective for a stated purpose, the Industrial Technical Information Division (ITID) must make its media as basic, flexible, and interchangeable as possible to allow local experts the greatest chance of finding the right material in the right form for the given need.

"4. Technical information will be used more, and its use will have more lasting benefit, in proportion to the number of local people who are involved in preparing it and disseminating it. The effort should always be to increase local participation, helping train host-country people toward the day when ICA help will no longer be needed.

"5. For the same reason that it is next to impossible for a central office to determine the proper medium to use, it is almost as difficult to determine the kinds of information which are needed. The ITID, therefore, must be prepared to cover the whole range of technology in its subject matter, and all its periphery; in specific cases, it must be guided by reaction from the field, preferably through feedback (see Operating Guide No. 13).

"6. The ITID must be primarily a service organization--a "can-do" service, which gladly relieves the field of all the load possible.

"7. Information is a perishable commodity, and the ITID must organize to process it quickly. Urgency is the best policy.

"8. Because the unit cost is low and usually gets lower as quantities increase, and because it is difficult to determine exactly where it will do the most good, the best way to insure return on the investment in technical aids is to make their distribution as widespread as practicable. They should be considered highly expendable at the recipient's level, they should be supplied in adequate quantity to USOMs, and all feasible channels of distribution should be used.

"9. Utilization of materials should be promoted, to make the distribution widespread and to motivate effective use of the materials, once distributed.

"10. The package is important. Materials should be appropriately prepared to be most inviting and attractive to the potential user.

"11. The ICA shield and other "credit-seeking" devices should be used judiciously. The purpose of the technical information material itself is to convey technical information, to help build a country, not simply to try to win friends for the U.S. by seeking credit for the assistance--all the more so because the claiming of credit often backfires.

"12. Red tape must not delay service. While administrative procedures are necessary, it is always possible to question where the point of diminishing returns lies, and in technical information programs for underdeveloped areas, even ordinary procedures can jeopardize important programs.

"13. Feedback and evaluation must be built into technical information channels and media. This is all the more necessary and all the more potentially effective because the whole operation should be communication-centered.

"14. The development and issuance of technical information materials should be done in an orderly and comprehensive pattern, clearly outlined to the field, to make it easy for the field to be able to identify each item, to judge in advance where the particular item fits into the program and how it can be used."

A fully-competent IDC implementing institution is an absolute essential for the assurance of effective use in-country of the full potential of the technical information flowing in from other lands. Without such a bridge between the knowledge donor and the host country user, the knowledge-transfer process simply doesn't work. In addition, however, to their role as essential factors in the knowledge-transfer process from there to here, the local library, reference or documentation center also plays other useful roles in development.

As pointed out by Hebaut Arntz, Vice-President, International Federation for Documentation,^{4/} "the mental schooling and training in concentration that documentation work imparts ought to be a material factor in training as a whole in the developing countries, regardless of whether, afterwards, the fruits of such training benefit documentation itself or some other branch of activity". And, further "The importance of documentation for the developing countries is not therefore limited to the inflow of information. All library and documentation institutions are centres of education and instruction, and in the developing countries particularly they are strongholds of research."^{5/}

^{4/} "The Role of documentation in developing countries", UNESCO BULLETIN of Librarianship, No. 1, January-February 1971 by Hebaut Arntz.

^{5/} Op. cit., p. 13.

The variety of the Host Country Institutions which receive and handle the in-flow of scientific and technical information from other lands is very substantial indeed. In various forms, they range from generalized public Institutions, such as Public Libraries, Technical Libraries, or Documentation Centers to very small or limited-scope reference centers in developmental Institutions working in a single area of the development process. In some of the larger libraries or centers of major Institutions, the collections are large and varied; the monthly inflow of materials from other nations--both developed and developing--may total many thousands of titles per month; and procedures for receipt, screening, cataloging, indexing and storing the materials highly sophisticated. In some of the smallest, one part-time administrative staff member may handle the material the best way he can in the time available to him, and with his limited knowledge of the fundamental techniques involved.

In a broad grouping, the following may be cited as among the most general and significant of the Host-Country Institutions dealing with the inflow and use of technical information:

1. Technical libraries or reference centers of specialized developmental Institutions, such as: Industrial Banks or Loan funds; Productivity and Development Centers; Health Centers; Management Institutes; Management Consultancy and/or Training Centers (Public or private sector); Agricultural Institutes and entities in the agricultural extension service; Agricultural or other cooperative Institutions; Research Institutes or Centers; Scientific and Technical Information Centers; and Science and Technology Institutes.

2. Independent Documentation Centers.
3. Independent general or specialized technical libraries.
4. Libraries of principal academic Institutions.
5. Libraries of Government Ministries.
6. Libraries or Reference Centers of Elementary or Secondary Schools or Non-Formal training Institutions.
7. Libraries of major private-sector productive enterprises; or government-owned enterprises of the same nature.
8. Libraries of Specialized Regional Centers for Education, Planning, training and other development-related activities.

While specific pattern of responsibility and services provided by a technical library, reference center or documentation center will be as varied as the subject matter covered and the types of Institutions which they service, there are nevertheless a specific combination of services which are implicit in the functioning of such centers, and which will appear almost universally, including:

Physical receipt, indexing, cataloging and storing of incoming materials.

Arrangements for ready retrieval, in an appropriate manner.

The development and publication of bibliographies, digests, annotations of holdings, materials on special topics, etc.

The provision, either periodically or to specific request, of copies of pertinent documents to meet the needs of the user community.

The development and sale of derived or second-generation publications, as appropriate to the local situation.

Always, where language problems are to be overcome, services on a regular or contract basis to translate (or adapt) materials from the original to one or more of the local languages.

Continuing or spot services to respond to individual requests of visitors to the center or by mail--including copies of publications; extracts; reprints; condensations; specialized bibliographical advice; and in some cases specifically-developed answers to technical inquiries.

Periodical newsletters or technical journal type publications to keep the public informed as to developments in the subject area covered; to provide summaries or highlights of significant new acquisitions; or (in some instances) to provide in-depth technical articles on specific selected topics within the scope of the subject area covered.

In addition to the above, all based primarily if not entirely on the printed word, centers of this nature frequently produce and display technical exhibits, sometimes arranging for them to visit a number of localities. Similarly, they often provide as a service or feature regularly-scheduled or periodic film showings.

Some technical centers provide gratis or for a fee film showings, lectures, or expert seminars on selected topics, based primarily upon materials maintained in their reference stacks.

Almost all institutions allow the public access to their reading rooms, and loan individual publications either for study on the premises or for short-term use outside the center.

In addition to the conventional--and quite general--services of the type briefed immediately above, in some of the more advanced LDC's, larger technical information or reference centers of specialized developmental institutions play a substantially broader role than that noted. In such

instances, these Institutions may perform an extremely important role in youth and adult education not only for the city where located but also in other villages and towns, some at considerable distance from the central location. (This may be done through branches, but is often done by the central entity itself.) Included in such programs may be some or all of the following types of activities:

1. Hosting and conducting both organized and spot adult education courses, primarily at night but in some instances during the day as well, on a variety of subjects appropriate to the needs of the situation. Materials for the training, generally, are drawn from the library's accumulated holdings augmented by current receipts.
2. Conduct of organized programs for correspondence-school type education and training, through the facilities of the Institution's holdings, usually through the work of a specialized staff of trained "educators" or "trainers", who have a sound working knowledge of librarianship.
3. Organized programs for traveling libraries, exhibits, and displays, targeting audiences outside the city of location. For some Institutions, such programs are of outstanding importance. In all instances, the library's accumulated holdings are involved in such services, supplemented insofar as possible with donated books and/or other new acquisitions.
4. In the libraries of some larger Institutions, especially those which are an element of a University or Technical Institute, a combination of librarians and educators work with materials in the

stacks and received through exchange programs from other nations (developed and developing) in the shaping of course content for new courses in the Institution's curriculum; and/or for the continuing up-dating or modernization of assigned reference work or supplemental reading for existing classes.

5. In many of the libraries of the large University, Technical Institute and Scientific or Research Centers, the library serves both as the home and the sparking point for substantial programs of both individual and team research programs, the results of which in the long run will make major contributions to the productive enterprises in and the economic growth of the nation.
6. In some of the larger entities, a regional program of substantial significance may be started and operated with the impetus of the availability of the right types of materials at hand, and the assurance that they will be regularly up-dated by the Host Institution.

ATTACHMENT 2
MAJOR TECHNOLOGICAL INNOVATIONS RELATING TO
THE APPLICATION OF THE PRINTED WORD
FOR EDUCATION AND KNOWLEDGE TRANSFER

The development and use of the printed word in human communication, transfer of knowledge and both formal and non-formal education and training has been a continuing process since before the era of recorded history. One innovation has tended to lead to the next in a steady progression. The process has sometimes been very slow and halting, with little significant change in techniques even over a period of hundreds of years. At other periods--most markedly during the twentieth century--the process has proceeded at break-neck speed. While there have been hundreds--even thousands--of noteworthy developments, a few tower over all the rest in significance. These innovations have played a key role in mankind's development to the present level of scientific, technological and managerial capability.

1. Breakthroughs prior to the Twentieth Century:

1. Inscriptions on stone and similar durable materials. Apparently, the first known use of print as a medium for recording thoughts and knowledge for transfer to others was the inscription of figures, paintings, line drawings and hieroglyphs on stone or similar materials. While much of the material which has been uncovered or discovered appears to be primarily of cultural significance, a significant part was certainly educational, knowledge or concept-transfer in nature. The dawn men who were inspired to apply such techniques paved the way for an exciting and significant series of future development and innovations.

2. The discovery and use of papyrus, parchment and (later) paper, with characters written thereon, formed the basis for the first "books" used for education, the communication of thoughts other than by drums, smoke signals, etc; by word of mouth; or by bodily signals, and for the transfer of knowledge and cultural mores over time—both for present and future generations.
3. The invention of printing, involving engravings on stone or other durable materials, inked and pressed on paper or similar materials for image transfer, was certainly one of the most important of all technological innovations involving the printed word. The introduction of this process greatly expanded the potential audience of a particular body of knowledge, since a sizeable number of copies could be made from a single engraving—replacing the former laborious re-copying and writing of "books" and similar printed materials by hand.
4. The development of movable type and of printing presses utilizing it is generally conceded to be the key to modern science and technology; and undoubtedly ranks with the invention of printing as the key to the increasingly-rapid technological progress of mankind in the past two or three hundred years. Movable type, with increasingly-rapid and efficient presses, introduced entirely new dimensions into the speed of output for both composition and for copy production; made feasible the development

and application of a variety of improved papers; forced the development of more efficient and mechanized binding; greatly expanded the availability of books and other printed materials; and made technically feasible the development and use of current periodic publications such as newspapers, journals and the like.

5. The application of photo-printing techniques, complementing the utilization of movable type, not only led directly to lower-cost and in some instances more effective printing, but of much more importance, made possible the inclusion on the printed page of visuals, such as drawings, photographs and other illustrations, thus introducing an entirely new dimension to knowledge-transfer capability of the printed page.
6. A related--but separable--innovation of substantial significance for more effective transfer of knowledge via the printed page was the development of color separation techniques and the introduction of color printing. The appropriate use of color in printing--like the imaginative use of visuals--made possible effective transfer of knowledge in situations where this was difficult (perhaps almost impossible) through black-and-white printing alone. Of equal importance, it made knowledge transfer more pleasing; more stimulating; and more effective.

II. Breakthroughs during the Twentieth Century:

It currently appears that twentieth-century technological and scientific developments in the sphere of the printed word—as in science, medicine, electronics, transportation and other forms of communication—may well prove more important in total human history than all earlier developments since the dawn men walked the earth. The following have special significance:

1. The development and introduction for general use of a variety of techniques for "informal", short-run printing of various materials, each of which provide an inexpensive, rapid means for producing one or a limited number of copies of desired materials—from one to many pages. Included in the array of techniques of this nature are the mimeograph; the ditto machine; and various types of the thermal printing process generally called "thermofax" "xerox" or duplimat". This process has revolutionized much of the administrative-secretarial processes in industry; and has proved of extreme significance in the library and in the educational community. The outstanding importance of this process is clearly testified by the severe differences of opinion, arguments and more formal representations relating to the allowable uses of these techniques in re-producing copyrighted intellectual materials.

2. Application of the computer--a major twentieth-century invention--to the process of knowledge indexing, cataloging, storage and rapid retrieval and print-out is very likely to prove--over the long run--a development outstripping in significance even the invention of the printing press, movable type and paper as a contributor to human innovation and scientific, technological and economic progress. The computer possesses an almost-unbelievable capacity for extremely rapid indexing, cataloging, recording, feed-in, storage and retrieval of vast amounts of material in printed format. The capability of the electron' computer to perform calculations and print out the results at fantastic speeds has laid the foundation for major breakthroughs, now in process, in the storage, retrieval and transfer of human knowledge. These systems, with the effective input of professional know-how in specialized fields accompanied by the ultimate achievement of developments in institutional capability which are already in process, will set the technological core for global networks capable of telescoping the time required for the LDC's to make in one or two generations the gains achieved by the developed nations over many generations; and also accelerate the pace of scientific and technologic advance in the developed lands. Computerized indexing, cataloging, abstracting, storage and retrieval are now in process of revolutionizing the entire system of libraries and documentation centers; and are well on their way to completely outmoding earlier techniques.

3. A companion technological innovation--separable but entirely essential to the successful application of computerized approaches to national and international networks for the global exchange of knowledge--was the development of electronic techniques for the instantaneous transmittal and simultaneous print-out of prototyped materials, both in the printed word and in visuals. In the absence of such simultaneous transmittal techniques--capable of spanning vast distances not only between continents but also through space--no amount of computerized storage-retrieval of knowledge could provide the basis for the effective current transfer of knowledge over long distances. The gains which can attend broadened, almost instantaneous knowledge exchange cannot at this time be fully anticipated, but appear certain to have a major influence on future advances in all fields.
4. Micro-storage and retrieval of printed materials, a relatively recent development which is not yet fully solidified, tested and generally applied but is already in wide use in industry and the library community, is a breakthrough of very considerable significance, though it would certainly appear to rank in ultimate significance well below the application of the computer and electronic instantaneous transmittal of printed materials. However, it is already clear that its application on a broadening basis may well further revolutionize and make more effective the storage and retrieval of knowledge (in libraries, documentation centers and the like) and in the educational process. This may

prove to be particularly true for applications in the newer multi-media and systems approaches to both formal and non-formal education and training.

5. A significant new development in the sphere of education and training has been the application of sound and visual materials (movies, ^{videotape,} slides, exhibits, charts and others) as adjuncts to ^{and transfer agents for} the printed word, as a basis for "multi-media" approaches to learning. These approaches, becoming of steadily more importance, can and do add new dimensions to the learning process, frequently improving both learning rapidity and quality, and providing a knowledge dimension entirely lacking in the absence of audio-visuals.
6. The application of "programmed instruction" concepts and approaches to education and training involves the arrangement of printed materials for a stratified, individualized approach to knowledge acquisition, with or without the utilization of "teaching machines" of varying degrees of complexity. These approaches, properly and imaginatively applied under professional guidance, can and do make a significant contribution to more effective individualized learning approaches—and may help to solve apparently "insoluble" educational problems.
7. A relatively recent and promising—but not fully formulated—application to both formal and non-formal education and training

is the utilization of educational technology approaches. These involve some form or combination of transmittal hardware (radio, television, projectors, record players, and the like) with an appropriate combination of printed materials, visual and audio inputs. In such "technology" approaches, the sound and picture (e.g., television or radio-cum-movies) : complemented by printed scripts; reference materials; follow-up study manuals or pamphlets; work sheets and the like; and testing materials. On the basis of studies, experimentation and trial installations already functioning, it appears that quality education should eventually reach more people--including those in remote areas--through the application of appropriate technologies, at a hopefully-smaller cost per student than through conventional approaches.

7. A conceptual educational innovation, the so-called "systems approach" has direct relevance, presently and in the future, to the utilization of the printed word in future formal and non-formal education and training, and a fundamental significance to the realization of the potential of educational technology. This approach involves the planned application of an appropriate variety of educational techniques and printed-visual instructional materials most suited to particular circumstance; and with the highest composite cost/benefit ratio compatible with specified levels of educational quality. As these approaches prove out and

are applied in practice, the results in the more effective utilization of printed and other instructional materials and more efficient education are deemed likely of realization.

ATTACHMENT 3

OUTLINE: Illustrative Uses of published materials in formal and non-formal education and in other knowledge-transfer activity

I. Printed materials as knowledge-transfer tools (other than in education and training):

1. Scientific, technical, professional and reference works, (bound as books) and used as^a direct knowledge-transfer medium, either through
 - a. Individual purchase, rental and use; or
 - b. As made available through organized storage-and-retrieval points (libraries, documentation centers, technical reference centers, and the like).
2. Scientific, technical, professional and similar development-related periodical publications.
3. Special articles; monographs; pamphlets; reports; and related monographic literature used for direct, unindividualized knowledge-transfer (on a spot basis or over time) of specific development-related concepts, and knowledge.
4. Digests, abstracts and similar published condensations or summaries of specialized current published materials (both periodical and monographic); generally pegged to specialized subject matter (such as health, agriculture, economic development, industrial management, technology, etc.)
5. Spot collections (or packages) of pertinent published materials, assembled for specific answers to requests for development-related knowledge. (May contain reprints, special writings, books, copies of journals, citations for further study, etc.)

6. Bibliographic services, outlining publications by source (by subject, etc.); providing annotations; and sometimes specialized reading lists.
7. Specialized reference materials, provided either through subscription services or on an occasional basis, including producers' and suppliers catalog services; summaries or analyses of sources and characteristics of various products; and similar specialized information for activities in the economic development process.
8. Machine printouts—to individual request—of knowledge stored in libraries and similar organized storage-analytic-retrieval facilities.
9. Micro-reproductions; micro-cards; micro-fiche printouts and similar micro-photographically processed and stored printed materials, reproduced to specific order or request.
10. Instantaneous electronic print-outs of materials relayed from storage in distant localities.
11. Printed instructional materials for use in formal and non-formal education and training:
 1. Textbooks—for use by students as sources of knowledge for classroom education and as guides to self-study and learning enrichment. (Used also by instructors, in some instances, as a guide to implementing prescribed curriculum and course content).
 2. Course outlines, teachers' guides and similar instructional materials designed for use primarily by the instructor—but of occasional use also to students.

3. Reference books (obtained individually or provided in organized library and reference collections) for self-study; assigned or voluntary supplementary reading; for learning enrichment; and for individualized research.
4. Training manuals; training course outlines and discussion-leader guides; course scripts and related guides and content materials for use by the instructor, discussion leader and students for organized non-formal education and/or for self-study, usually in work-related situations.
5. Appropriate, organized combinations and series of books, pamphlets, reprints, articles, loose-leaf and fugitive printed materials, with study outlines as required, for use in correspondence and similar self-study courses, designed to lead directly to appropriate certificates, course credit or other formal learning citation. Such organized training arrangements are especially applicable for post-school learning enrichment; for the acquisition of newly-identified skills requirements; and in remote areas where opportunities for formal education and training are lacking.
6. Organized, stratified collections of textbooks provided as guides for textbook writing and/or for the development of new specialized learning materials, in varying situations.

7. Highly-specialized, mass-produced pamphlets, comic-book type publications and similar highly-informal, highly-visual materials--with a minimum of written words--to make more interesting and palatable the acquisition of learning for those of limited literacy and limited reading motivation.
8. Newspapers represent a highly-useful adjunct to other printed materials for both formal and non-formal education, especially in those disciplines which require fully-current information on events and technical developments.
9. Programmed textbooks and a variety of other printed programmed-content and method learning materials (increasingly applied for those with learning problems, and for individual-path knowledge acquisition).

III. Books and other printed instructional materials for use in multi-media approaches and as software for educational technology systems--for both formal and non-formal education.

1. Bound or un-bound printed materials for use in teaching machines and other programmed-instruction hardware.
2. Books, newspapers, journals, and other printed materials as a content element in classroom learning resource centers--in conjunction with audio and visual materials.
3. Printed materials applied as essential software (together with audio and visual materials) in educational systems based on technology--radio; radiovision; television, etc.:

- a. Course content outlines, schematics; presentation guides, production instructions, program notes, sound and lighting cues for use in radio or television broadcasts, videotape recording, and a similar audio or television broadcasts, videotape recording, and similar audio-visual program materials generation.
- b. Scripts, lectures, and other appropriate guides for instructors.
- c. Work-books, manuals and other essential printed reference tools for student use, for learning facilitation; for repetitive drill and refresher study; and for individualized research and supplemental study for learning enrichment.
- d. Tests and related materials required for measuring student accomplishment, problem situations, and progress.
- e. Where appropriate, production of translations, abridgements, and print-outs of educational technology materials generated in past courses, for use elsewhere. The printed word in such instances may appear in video-tape, film transparencies, or in printed form, bound or un-bound.
- f. Certificates of accomplishment; instructor analyses of student accomplishment in correspondence courses, "open University" approaches, etc.; further assignments and instructor-to-student guidance; student questions and requests for helpful guidance; course-related reference materials for retention and future use; and many other bound or unbound printed items.

ATTACHMENT 4.

LISTING OF RELEVANT DOCUMENTS

1. Summary of A.I.D.-funded technical information activities of Participating Agencies: "Preliminary Analysis of FY 1970 PASP Services Attributable to "General Technical Inquiries". A.I.D., Office of Procurement. 1972.

Provides financial data and some statistics on volume of activity by various Government Agencies backstopping A.I.D. overseas programs--including U.S. Department of Labor's International Labor Affairs Bureau; Office of International Health; National Library of Medicine; Housing and Urban Development's Office of International Housing; U.S. Department of Agriculture; Department of Interior's Bureau of Reclamation; and others. Total dollar volume for staff and related costs, FY 1970, \$361,000.

2. "Proposed Information System for A.I.D. Reports and Documents", Memorandum of December 1, 1971, Mr. Erwin J. Lachman, PPC/RS/PS to Mr. Ernest Stern, then Assistant Administrator for Program and Policy Coordination.

Provides background and analysis of basic problems limiting the usefulness of past A.I.D. reports in current program operations. Recommends a new service, including computerized cataloging of A.I.D. Reference Center holdings; a periodical announcement of holdings and new acquisitions, by title and subject; and provision of copy or reprints to overseas A.I.D. Missions, on request.

(The action plan proposed was approved; and work on this new approach is now going forward).

3. "Information for a Changing Society": Some policy considerations". Organization for Economic Cooperation and Development, Paris, 1971. Report of an Ad Hoc Group on Scientific and Technical Information.

Contains a penetrating and wide-ranging analysis of national and international trends on exchange of technical and scientific information; the key role information plays in the development process, and ways in which the knowledge-transfer process functions. Outlines goals for a National Policy On Scientific and Technical Information; and implications for Public policy in both the developed and the developing nations. Provides conclusions and recommendations for action.

4. "Scientific and Technical Information for Developing Countries". Report of an Ad Hoc Advisory Panel of the National Academy of Sciences, John Green, Chairman. March 1972. Submitted to Agency for International Development's Technical Assistance Bureau April 1972.

Provides rationale and recommendations for future organized action by A.I.D. in the more effective application of the potential of scientific and technical information in development assistance. Provides illustrative projects for useful action in this area. Recommends provision of central organizational focal point by the Agency in the scientific-technical information field; emphasizes

the fundamental importance of building in LDC Institutions the competence to receive, store, analyze, catalog, retrieve and diffuse effectively the knowledge embodied in scientific and technical information available from both developed and developing nations.

5. "Government Responsibilities in Information for Industry". OECD, (Paris) 1972.
6. "Information Technology--Some Implications for Decision-Makers." National Industrial Conference Board, New York, N. Y. (1972)
7. "UNISTEP: Synopsis of the feasibility study on a World Science Information System". Report of a Central Committee created by UNESCO and the International Council of Scientific Unions. UNESCO (Paris) March 1971.
8. "The Communications Approach to Technical Assistance, with Specific Application to the Industrial Technical Aids Program of ICA". J. Benjamin Liberman and Robert L. Woodcock. Based on a Stanford Research Institute survey assignment for ICA. July 1956. Outlines both generally and in specific detail the role of technical information, properly mobilized and transmitted, in the process of national growth and development--with emphasis upon the industry sector, but with relevance to other sectors as well. Outlines rationale; organizational suggestions; actions to build required Institutional capability in recipient LDC's; and suggestions for the effective functioning of such Institutions.

In Appendixes, provides a comprehensive outline of actual or potential communications resources materials and services applicable to knowledge transfer and diffusion for development.

9. "The Role of Documentation in Developing Countries", article reprinted in the UNESCO Bulletin of Librarianship, Volume XXV, No. 1, Jan-Feb. 1971. By Helmut Amtz, Vice-President, International Federation for Documentation.

Comments on the basic significance of documentation and the role of the organized collections of resource materials (in libraries, documentation centers, etc.) for the national growth process. Emphasizes the role of such knowledge-collections as a focal point for education, research and other processes of key significance for national development.

10. "Manual on Book and Library Activities in Development", by Stanley A. Barnett and Roland Figgford, State University of New York, on contract to the Agency for International Development. June. 1969.

This is an extremely comprehensive reference manual which outlines the role of printed materials in the national growth process, summarizing the primary areas of LDC needs for printed materials for educational and resource development. The report outlines the major past activities of A.I.D. and other principal donor entities in the area of printed materials transfer; library development; and development of LDC indigenous capability in the

educational and publishing sector. Analyzes the essentials of educational processes in some LDC's, relating to individual country educational, book and library development surveys. Suggests spheres for possibly-useful regional and multi-donor collaboration.

11. "Summary Report of ALA Activities carried out under Basic Agreement AID/csd-1538", between A.I.D. and the American Library Association, in support of ALA's International Relations Office, Washington, D. C. March 1972.

Provides useful reference information on the project support activities carried out by the ALA International Relations Office and contractor personnel in behalf of A.I.D.'s library-development project activities in key LDC's during the years 1967-72, inclusive.

12. "Who is doing What in International Book and Library Programs". Proceedings of a Conference Sponsored by ALA/IRO under A.I.D. auspices. Washington, October 9, 1967.
13. Series of special articles in "Libraries in International Development", published monthly by ALA's International Relations Office, of relevance to application of the printed word in development assistance:
- a. "Library Development in Developing Countries: A Systemic Approach", by John L. Hafenrichter, Education Advisor (Library Science), USAID/Saigon. Issue 43, February 1972.

- b. "The School Library"—Based on a statement by Glenn Estes, Graduate School of Library and Information Science, University of Tennessee, Outlines the role of the school library for educational enrichment. (Nov, 1971). Issue 40.
- c. "Recommendations Made at International Meetings on Development of Documentation and Library Services". Summarizes a variety of recommendations on this topic at key international meetings. Issue 33, April 1971.
- d. "International Book Year (IBY)". Summary of UNESCO's Book Program, and plans of action for IBY—1972. Issue 32, March 1971.
- e. "The Asia Foundation's Work with Books and Libraries" by William McDougal, the Asia Foundation, San Francisco, California. Outlines the wide-ranging activities of the Asia Foundation in library development, book distribution, (Books for Asian Students and other programs); and in the training of personnel. Issue 30, January 1971.
- f. "Gift Book Programs for Libraries", Issue No. 19, February 1970. Lists and briefs the gift book activities of a wide variety of voluntary and other entities engaged in the flow of useful books to Institutions in the LDC's
- g. "Recent Developments in Advanced Librarianship Affecting Public Libraries", by H.C. Campbell, Chief Librarian, Toronto Public Libraries. Issue 42, January 1972.

- h. "Book Selection Policy in African Libraries", by Albert Levesque, who served for 5 years as head librarian at National University of Rwanda, Issue 35, June 1971.
- i. "The Public Libraries in Mexico: History, Organization, Functions, and Their Future", by Dr. Maria Teresa Chavez Campomanes, Librarian, Biblioteca de Mexico, Issue 38, September 1971.
- j. "University Library Development in Indonesia", by Dr. William L. Williamson, Professor of Librarianship, University of Wisconsin. Based on an A.I.D.-financed study and advisory-service assignment in Indonesia. Issue 37, August 1971.
- k. "Library Development in Turkish Universities", by Dr. Robert B. Downs, Dean of Library Administration, University of Illinois. Based on an A.I.D.-financed assignment in Turkey for advice and appraisal of progress on the library development aspects of a large A.I.D. education-sector loan to the Turkish Government, in support of the development of Hacettepe University and the Middle East Technical University. Issue 34, May 1971.
- l. "International Focus on School Library Development: Three Conferences in Australia", by Phyllis Hochstetler, Associate Professor Education, Portland, Oregon State University. Issue 31, February 1971.
- m. "International Cooperation in Agricultural Libraries of Developing Countries", by Olga Lendvay, National Agricultural Library. Issue 36, July.

- n. "The Pan American Health Organisation Regional Library of Medicine", by Mary E. Corning, Special Assistant to the Director, National Library of Medicine. Issue 24, July 1970.
14. "Books for Developing Countries"—a Guide for Enlisting Private-Industry Assistance. Franklin Book Programs, Inc. under contract to A.I.D. Fall 1968.
15. "Books and National Development", Report on Conference on reference subject under auspices of Korean Book Publishers Association, with A.I.D. support. Seoul, Korea, April 27-29, 1968. Explores in some detail the role of books in LDC development, with special reference to the educational process; covers problems and processes of developing indigenous book publishing-production capability in an LDC.
16. "Book Publishing in Asia", Report on a Regional Seminar on Book Publishing, Sponsored by Singapore Book Publishers' Association and Franklin Book Programs, Inc., under A.I.D./Central Book Activities funding. March 1969.
17. "Book Development: Some Current Problems", Report on a Regional Seminar on Book Publishing, Sponsored by the Federation of Publishers and Booksellers' Associations in India and Franklin Book Programs, Inc., under A.I.D. Central Book Activities funding. May 1969.
18. Series of country studies on book and library development activities and requirements, the educational system, and publishing/printing/distribution capabilities in selected LDC's conducted under the

auspices of AID's Central Book Activities program, covering

Turkey: "Books as Tools for National Growth and Development"
Wolf Management.

Iran and Pakistan (with supplement for Turkey) as a "CENTO"
program, Under the title, "Book Production, Importation and
Distribution in..." State University of New York and
Wolf Management.

Chile, Peru, "A study of Present and Needed Book Activities
in National Development for...(Chile, Peru)"
University of Pittsburgh.

Vietnam; Thailand; Laos; Indonesia; Korea; the Philippines,
under the title, "Development Book Activities and Needs
in....". Wolf Management Services.

Kenya; Tanzania, under the title "A Book Development Program
for...". Franklin Book Programs.

19. "A Book Development Project in Nigeria, 1964-68". Franklin Book Programs, Final Report on Program supported by AID/Ford Foundation.
20. A.I.D. Manual Order 1612.69.3, "Use of Books in A.I.D. Program", 1/19/67 Updated an earlier (1962) Policy Determination (No. 12) on Use of Books in the A.I.D. Program. Provided policy guidance relating to the provision of educational materials and professional publications, plus support of development of indigenous capability, in A.I.D. cooperative programs.

21. Joint State, A.I.D., USIA and Peace Corps Circular, CA-6069, (2/10/67), outlining new policy guidance and implementing instructions with specific relevance to a new National policy on international book and library development as part of U.S. development assistance. (Stemmed from Presidential initiative on expanded international educational and library development, 1966).

22. AID Circular A-163, 3/3/67, "New National Book and Library Policy; Implementing Directives to Government Agencies; and new A.I.D. Policy on Use of Books in the A.I.D. Program (M.O. 1612.69.3)". Transmitted specific A.I.D.-program aspects of joint agency directive; outlined in summary form past and current activities of the Agency in the area of book and library development.