AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

TEMPORARY

1. SUBJECT CLASSIFICATION
A. PRIMARY
B. SECONDARY

2. TITLE AND SUBTITLE
The use of satellites for telecommunication systems in education and national development,conference summary

3. AUTHOR(S)
(100) Ingle,H.T.; (101) Int.Working-Level Conf.on the Use of Satellites for Telecommunication Systems,Denver,Colo.,1974; AID/TA/EHR

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1974	26p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

AED

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*

9. ABSTRACT
(EDUCATION R&D)
(COMMUNICATION R&D)

Demonstrations and feasibility studies using the satellite and ground telecommunications for socio-welfare services were presented during a 1974 working conferer held at two American sites -- a production facility in Denver, Colorado, and at one of the project's receiving sites in Heber City, Utah. Geographic areas represented were Africa, Colombia, Venezuela, Brazil, Canada, Egypt, India, Indonesia, Iran, New Zealand and the Pan Pacific, as well as Hawaii, Alaska, and the Appalachian and Rocky Mountain regions of the United States. The conference emphasized methods for the management of educational technology projects, the development of software, provisions for field utilization support and personnel training, and the identification of research and evaluation approaches. No attempt was made to provide a general model for the use of satellite telecommunications in education. The conference established an information network among 52 individuals from 11 countries.

10. CONTROL NUMBER
PN-[illegible]

11. PRICE OF DOCUMENT

12. DESCRIPTORS

13. PROJECT NUMBER

14. CONTRACT NUMBER
AID/ta-C-1056 GTS

15. TYPE OF DOCUMENT

AID 1-0-1 (4-74)

THE USE OF SATELLITES FOR TELECOMMUNICATION SYSTEM IN EDUCATION AND NATIONAL DEVELOPMENT

An International Working-Level Conference

organized by the

Education and Human Resources Office
of the
Bureau for Technical Assistance
U. S. Agency for International Development

and hosted by the

Federation of Rocky Mountain States

May 3-10, 1974

Denver, Colorado and Heber City, Utah

Conference Summary Prepared by

Henry T. Ingle

Information Center on Instructional Technology
The Academy for Educational Development, Incorporated

May 24, 1974

MASTER

Table of Contents

INTRODUCTION

One of the most sophisticated, versatile and powerful communications spacecraft ever developed -- the Applications Technology Satellite-F (ATS-F) -- is soon to be made available under the auspices of the United States National Aeronautics (NASA). It is to be used to undertake a series of educational and health demonstration activities involving the use of radio and television broadcast media in the Rocky Mountain, Alaskan and Appalachian regions of the United States and in the countries of Canada, India and Brazil.

It is expected that the experience gained from these activities will provide practical knowledge and baseline perspectives on how to plan for and use a satellite telecommunication system in the most socially beneficial and cost-effective manner. The experimentation also is expected to provide detailed information on the applicability of this technology to general educational and national development efforts around the world.

For this purpose, ATS-F will be positioned at a point 22,300 miles above the Galapagos Islands and used by the United States to distribute educational television and radio broadcasts to teachers and students in remote, isolated communities of Appalachia and the Rocky Mountains. The content of these broadcasts will be devoted to teacher in-service training, career education and reading.

In Alaska, ATS-F will permit two-way medical communication focusing on diagnosis, health consultation and medical in-service training between hospitals and rural clinics.

The ATS-F spacecraft later will be shifted to a point over Kenya and used by the Indian Satellite Instructional Television Experiment (SITE) to beam educational television and informational programs to as many as 5,000 villages in India, disseminating health, agricultural, educational and family planning messages.

In Brazil, ATS-F will be used for Project SACI - Advance Interdisciplinary Communications Satellite - by the Brazilian Institute of Space Research (INPE) to provide educational radio and television broadcasts in the state of Rio Grande de Norte to students in the primary grades and to upgrade and train teachers in their subject-matter knowledge and new teaching methodology.

With the exception of the Canadian Communications Technology Satellite (CTS) ~~experiments~~, which are still at the early planning stage, the various educational and health activities involving the use of the ATS-F system have been documented in detail in numerous publications and in particular, the following two reports, respectively released by the U.S. Agency for International Development and the U.S. Department of Health, Education and Welfare:

- Broadcast Satellites for Educational Development: The Experiments in Brazil, India and the United States

- Health- Education Telecommunications Experiments: A Summary Description

During May of this year representatives from the various projects involved in the ATS-F experiments and demonstrations met in conference at the Rocky Mountain site in the United States to compare notes,

share experiences and common problems, and report on their progress to date. Also represented at the Conference were individuals from other countries and agencies interested in learning more about the satellite experiments and the plans for using satellite technology in education and national development.

This document summarizes and reports on the proceedings of the Conference which brought together fifty-two individuals, representing eleven countries, for eight days, beginning on May 3 and ending May 10, 1974.

Among the geographic areas of the world represented at the Conference were Africa, Colombia, Venezuela, Brazil, Canada, Egypt, India, Indonesia, Iran, New Zealand and the Pan Pacific, as well as Hawaii, Alaska, and the Appalachian and Rocky Mountain regions of the United States.

The Conference was under the auspices of the Education and Human Resources Office, Bureau for Technical Assistance, of the U.S. Agency for International Development. The Federation of Rocky Mountain States (FRMS), project manager of one of the three U.S. sites for the Applications Technology Satellite (ATS-F) educational experiments, served as host site.

The Conference participants divided their time between the FRMS headquarters and broadcast management-production facilities in Denver, Colorado, and one of the project's local receiving sites in Heber City, Utah, which is to take part in the satellite-telecommunications demonstration in September 1974.

The purpose of the Conference was not one of endorsing or promoting the use of satellite technology as such. Rather it was designed to facilitate the exchange of information and the sharing of common problems among those individuals undertaking, or about to undertake, demonstrations or feasibility studies using the satellite and ground telecommunication socio-welfare services. A special emphasis of the Conference was on methods for educational management of technology projects, development of software, provision for field utilization support and personnel training, and the identification of research and evaluation approaches.

In order to establish a point of reference for discussion and also to promote a climate for sharing of information among the various participants, the first part of the conference was devoted to a briefing on the various communication satellite demonstrations and experiments presently underway or about to be undertaken.

This was accomplished by requesting each of the major experimenters represented at the conference to give a brief presentation on their project, its progress to date, and specific problems or constraints being experienced. Major presentations focused on the Federation of Rocky Mountain States, the Appalachian Regional Commission, the ATS-F Alaska Health Care Delivery Experiments, the proposed Canadian CTS Experiments, the work in India and Brazil, and the activities underway in the Pan Pacific area. Three days of the conference were devoted to this activity, intermingled with a tour of the telecommunications facilities of the Federation of Rocky Mountain States and an audio demonstration of a satellite transmission.

The remainder of the conference was devoted to small group and special interest discussion sessions in which the conference participants grappled with a series of questions focusing on planning, management, programming and research-evaluation activities common to both the uniqueness of satellite telecommunications and the use of educational technology in general.

The following pages highlight the substance of the conference, major conclusions reached, and the implications these conclusions might have for those countries and individuals who participated in the conference as well as those not directly involved. The summary report has been written on the basis of presentations given by participants at the conference and the plenary and small-group discussions which followed the presentations. It also takes into consideration the written documents distributed to participants during the conference as well as joint and individual rapporteur reports on the various presentations and discussion sessions.

This summary, however, is not an all-inclusive and exhaustive report of the conference proceedings. For no matter how diligent and alert the rapporteur, a faithful reproduction of the proceedings could never be captured on paper. Too many bits and pieces of information were exchanged in countless formal and informal moments of human interaction throughout the proceedings of the conference, which prevent the reporting of the total picture. For this reason, only an approximation of what actually took place has been recorded, and

this, in turn, has been backed up by only a fraction of what was actually said, took place, and was learned.

The reality, true value, worth and meaning of this Conference rests within each individual Conference participant. The full benefits they derived from the experience -- other than the documents in hand that they took away with them when the conference concluded -- no doubt will come much later and appear as "outcroppings" in the day-to-day professional tasks of these individuals.

A CONFERENCE SUMMARY

I. The Problematics of Communication Satellites for Education and National Development

The ability of communication satellite technology to rapidly transmit and distribute information emanating from broadcast media, such as radio and television, over wide, and often isolated, areas, and at somewhat of a reduced cost in most instances, was cited by the Conference participants as a primary reason for experimenting with satellite technology in educational programs of varying types, both within the United States and in other countries. This interest appears to have grown in the last six to seven years in view of the fact that in so many places around the world, television, radio and related broadcast media are being successfully used to provide qualitative and quantitative inputs to the educational process and as a catalyst for enhancing socio-economic development goals and improving man's everyday existence wherever he happens to live.

Along with the reported major planning efforts for the use of satellite technology and broadcast media in Canada, Brazil, India and in the Alaskan, Appalachian, and Rocky Mountain regions of the United States, the Conference took special note of the fact that Indonesia, the Andes Latin American countries, the Arabic nations and Central African States are in the throes of developing proposals to carry through feasibility studies on the prospects and problems of applying communication satellites to education and health services.

Several factors were cited as motivating or stimulating these planning efforts and feasibility studies: some are political, some

are economic, and some are social. A large number of these motivating factors, however, are educational in nature. For whatever their level of economic development or industrialization, all countries around the world are facing severe educational problems.

These problems include an increase in costs for educating students; unprecedented demands from the public for access to varying types of education; a lack of well-trained teachers; disparities between the equality of educational opportunities in the urban centers and the rural regions of the world; a high rate of student dropouts and repeaters; limited educational materials in the classroom; and an outdated academically-oriented curricula which do not quite answer the needs of scores of individuals seeking to improve their immediate living circumstances. Indeed, the list of ills is endless and represents an all too familiar litany to all of us concerned with educational efforts designed to help individuals improve their lot in life.

There are many ways decision-makers are trying to solve these problems. But by and large, these solutions reflect the conventional approaches involving the construction of more schools, the training of more teachers, or the spending of more money for education.

These approaches have not proven at all adequate for the tasks at hand because the rate at which these conventional measures promote change and improvement in a country is far too slow and sometimes more costly. Increasingly, therefore, alternatives employing new educational media and technology are being considered, and more specifically, a mix of satellite-technology involving broadcast media.

Communication satellites tied to broadcast media systems represent a relatively new technology that owes its genesis to the launching of Sputnik in 1957 and the follow-up activities involving the synchronous satellite Early Bird and NASA space research activities as well as the upcoming planned demonstrations to use the ATS-F system. Since then, and particularly in the last decade, an extensive body of literature on the subject of satellite technology has developed. Indeed, so much has been written and said about the subject of satellites, that it is difficult to separate that which is useful from that which is useless.

Some of the commentary on satellites is negative and unfavorable because of the high costs and high level of sophistication associated with the use of the technology. Some of the commentary, on the other hand, is positive and highly favorable because of the tremendous potential this technology offers for enhancing services in the broadly defined areas of education, health, nutrition and related social-welfare activities.

In education, for example, in regions where well-educated, well-trained teachers are in short supply, there is the chance to widely share the best teaching via satellite and TV. For areas where schools are limited in teaching aids and resources, there is the chance to widely distribute a variety of audiovisual materials and demonstrations, which markedly can enrich the teaching progress and motivate students to learn. Where special courses or special kinds of instruction and training are needed and local teachers either are unavailable or are

not equipped to teach them, there is the chance to pool limited resources to produce quality programming to meet this need and distribute it to many places. And where schools and related educational institutions do not exist, such as in outlying or isolated rural areas, education can be provided by broadcast media distributed over the satellite and supplemented by appropriate auxiliary teaching materials at the point of reception. The satellite system also can be used to provide in-service teacher training. And where literacy, reading instruction and continuing education are needed, basic broadcast materials teamed with discussion leaders or monitors can provide a viable alternative to existing programs of this type. Broadcasts distributed via satellite also can be used to accelerate learning and training for new, unique technical-vocational careers peculiar to a particular region.

In other sectors, broadcasts via satellites can help impart needed knowledge and information about health, agriculture, or community developments and provide medical consultation for those individuals who are sick and with limited or no access to qualified physicians.

In short, all of these potential applications of this satellite/television facility carry the realization that the perspective and the horizon of its users can be broadened; that new ideas and innovations relevant to different lifestyles can be brought to their attention; and that socio-economic changes appropriate to their needs can then be stimulated. All of these things are potentially possible through a mix of technology such as television and satellites and the use of related media such as radio and computers.

The words "potentially possible," however, are most critical to this consideration. For as the conference proceedings underscored, without the integration of the "hardware" and "software" aspects of any given technology; without the proper planning and development of strategies to put this technology into operation; and without some way of permitting the individual receiving the transmission to interact and to be involved in some form with those individuals planning and transmitting the materials, satellite telecommunication systems only will be "potentially possible" and never a reality. It is for these reasons that the communication satellite demonstrations and experiments presented and discussed at the conference are of unique importance. This should in no way suggest, however, that satellite technology is for all countries, but rather, that it can be useful and highly effective to accomplish a large number of educational and national development tasks that imply the use of broadcast media, such as television and radio.

The proceedings of this conference, therefore, are of a timely nature, particularly because of the non-technological emphasis the conference took and the practical orientation of the conference participants toward issues of the organizing, planning, managing and programming of communications media for education and national development efforts. To this must be added the realization that, by and large, the participants came to the conference willing to share real-world, practical concerns and comprehensive information relating to the use of satellites in their country. On the whole, the opportunity to

talk about these concerns in an informal, frank manner and to identify those constraints, resources and approaches that operate for and against the role of satellites in education was much appreciated and welcomed.

II. Communication Satellite Technology And Its Non-technological Aspects

It often has been said that the principal obstacles to the use of a given educational technology are non-technological in nature and that careful attention needs to be paid to those aspects popularly labelled "software," which include notions of program quality, availability of trained personnel and production requirements, as well as planning and utilization factors which either promote or impede the acceptance of an educational technology by those who will use it. This truism certainly proved to be the case for the participants at the Conference, even though there was general agreement that the two categories -- technological and non-technological -- are interrelated and the one influences and shapes the other.

However, more questions were raised than answered in the process of looking at those non-technological aspects of a communication satellite system which make for optimum effectiveness. Questions and areas for discussion focused on planning, management and operation, program or software development, and research and evaluation. To these concerns was added the almost universal need for training of personnel in all areas related to the use of communication satellites.

Rather than attempting to encapsulate the great wealth of information which was generated during the discussion of each of these concerns and thereby run the risk of over-synthesizing the proceedings, the rapporteurs' syntheses for each of these concerns have been included as addendum to report ~~an integral part of~~ this ~~section~~, following the reporting

format used at the conference.

These syntheses underscore the realization that, by and large, the Conference participants saw the successful application of satellites to education as being principally dependent on clearly defined goals and objectives and requiring maximum cooperation and commitment from many levels of government and many kinds of agencies and organizations. Above all, sound planning and an effective management structure were seen as essential ingredients.

The successful application of satellite telecommunications technology to education also was seen as being principally dependent upon the quality of the educational programs being delivered, the adequacy of the infrastructure at the receiving sites, and the degree to which project administrators and planners make a sincere effort and show a willingness to actively solicit the involvement of the user audience in the planning and programming phases. There was a feeling among Conference participants that educational and health projects using technology of this nature should not be planned and operated for the user audience, but rather planned and operated with the user audience.

Delivering educational broadcast information via satellite communications generally was seen as a complex undertaking requiring a climate of cooperation and commitment both at the local "grass-roots" level and at the highest of governmental and ministerial levels.

It also was felt that those individuals responsible for designing educational satellite systems must take into account the realities of the social, cultural and educational contexts into which the technology

is to be introduced and reconcile the centralized, cooperative nature of the technology with local interests, participation and control.

Questions of supplementing versus replacing teachers; using optimum mixes of teachers, media and paraprofessionals; supplementing broadcasts with printed materials and providing ample opportunities for interpersonal communication between those transmitting the programs and those receiving them; and increasing the effectiveness of education through the use of nonformal approaches were cited as having considerable bearing on future utilization of telecommunications in education.

Uppermost, the Conference participants indicated that because of the newness and relatively large numbers of unknowns associated with the use of satellite telecommunication systems for education and national development, initial experiments and demonstrations merit careful scrutiny and monitoring, which should become part of the policy-making activities and the program development and implementation phases.

III. Conclusions, Implications and Follow-up Activities

Given the context under which the conference operated, no attempt was made to provide any general model or set of guidelines for the use of satellite telecommunications in education and national education, nor were clear cut answers provided to the many questions and problem areas identified during the conference proceedings. This is hardly suprising considering the many unknowns about the subject and the fact that the use of satellite telecommunications in education and national development is still only a possibility and not a reality. It is a new field from which there is little practical experience to be reported, as yet.

Nevertheless, the conference accomplished its primary objectives. It facilitated the exchange of information and the sharing of common problems among those individuals undertaking, or about to undertake, demonstrations or feasibility studies using the satellite and ground telecommunication broadcast facilities in support of health, education and related development activities.

It also established a real-life informational network among fifty-two individuals, representing eleven countries, who will be exchanging practical experience, new knowledge, and common frames of reference in the use of satellites for education throughout the upcoming ATS-F experiments and demonstrations. This no doubt will help pave the way for the transfer of experiences that can bring beneficial knowledge and some sense of workable methodology and approaches to mankind on the use of satellite technology in both developing and already developed countries. Information of this type should contribute to a better understanding of both the limitations and potential benefits of this new technology for educational development.

The Conference also provided a forum for considering both the negative and positive commentary which has been associated with the idea of using satellites in education. This proved to be most beneficial in so far as stereo typed notions were disspelled. Among other by-products of the conference were a series of follow-up activities or proposals that were made:

- 1- that the U.S. Agency for International Development host a similar type conference some two years hence when most of the countries represented will have had some practical experience with satellite telecommunications and can report on the results of their experiments and demonstrations
- 2- that the U.S. Agency for International Development, in conjunction with other international agencies, such as UNESCO, that have a serious commitment to providing alternatives for the improvement of man's conditions around the world, set up some type of formal clearinghouse system in which individuals working in the field of satellite telecommunications and educational technology in general can be kept abreast of practical information on the planning, managing, programming and evaluating of major technology efforts
- 3- that international funding agencies work toward providing different types of training opportunities relevant to the use of educational technology in developing countries.
- 4- that the participants take active roles in helping to bring research and evaluation activities on major technology efforts to the attention of policy-making entities within their own country and sphere of operation.

LIST OF PARTICIPANTS

Africa	Mr. William F. COLEMAN	Senior Economic Affairs Officer (Communications) U. N. Economic Commission for Africa P. O. Box 3005 Addis Ababa, Ethiopia
Andean States	Dr. Ovidio OUNDJIAN	Secretary of the National Council of Science and Technology Secretary of the Colombian Foundation for Scientific and Technological Development Director, SERLA Project in Colombia Colciencias 256 South Sixteen Street Philadelphia, Pennsylvania 19102 or Apartado Aereo 10991 Bogota D. E., Colombia
	Dr. Francisco J. TUGUES	Executive Secretary National Committee of Teleducation and Regional Committee of Teleducation Apartado 51465 Caracas 105, Venezuela
Brazil	Dr. Adauto MOTTA	Manager, Education Program SACI Instituto de Pesquisas Espaciais (IN Av. Salgado Filho, 3000 C. P., 130 Natal RN, Brazil
	Dr. Plinio TISSI	Head, Research Department Instituto de Pesquisas Espaciais (IN C. P. 515, Sao Jose dos Campos, Braz
Canada	Mr. John GILBERT	Director, Social Programs Federal Department of Communications 100 Metcalfe Street Ottawa, Ontario, Canada
	Mr. David J. COOK	Director, OECA/CTS Project Ontario Educational Communications Authority 2180 Yonge Street Toronto, Ontario, Canada
	Mr. Mohamed Mahmoud RIFAI	Deputy Director, Science Department Arab League Educational, Cultural and Scientific Organization 109 Tahrir St. Dokki Cairo, Egypt

India	Dr. Bhupendra Singh BHATIA	Manager, Coordination and Operations Cell (Software) Space Applications Centre, ISRO Ahmedabad 380001, India
Indonesia	Mr. Yusufhadi MIARSO	Deputy Chairman Office of Educational Development Ministry of Education and Culture 23 Menteng Raya Jakarta, Indonesia
	Mr. Sutanggar TENGKER	Head of the Telecommunication Dept. c/o Directorate General Posts and Telecommunications 37 Kebonsirih Jakarta, Indonesia
Iran	Dr. Abdolrahim AHMADI	Chancellor, The Free University of Iran 101 Kakh Avenue Tehran, Iran
	Mr. Hamid NAFICY	Broadcasting and Media Officer The Free University of Iran 101 Kakh Avenue Tehran, Iran
	Mr. Rouben HACOPIAN	Manager of Telecommunications National Iranian Radio & Television Jamehjam Avenue, Pahlavi Road Tehran, Iran
	Dr. Kambiz MAHMOUDI	Deputy Director General, National Iranian Radio & Television P. O. Box 33-200 Tehran, Iran
Pan Pacific	Mr. John BYSTROM	Department of Communication University of Hawaii 2560 Campus Road Honolulu, Hawaii 96822
	Mr. Anthony HANLEY	Senior Tutor, Associate Director PEACESAT Project Wellington Polytechnic Wellington, New Zealand
U. S. A.	Martha R. WILSON, M.D.	Chief, Office of Program Development Alaska Area Native Health Service Box 7-741 Anchorage, Alaska

Dr. Harold E. MORSE	Director of Education Appalachian Regional Commission 1666 Connecticut Avenue Washington, D.C. 20235
Mr. Robert SHUMAN	Deputy Director Appalachian Educational Satellite Project 1666 Connecticut Avenue Washington, D.C. 20235
Dr. William E. RAPP	Vice President Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Ms. Nancie CLOWERS	Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Dr. Gordon LAW	Project Director, FRMS/STD Project Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Dr. Kenneth LOKEY	Associate Director, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Dr. Louis BRANSFORD	Director of Utilization, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Mr. Apostolos D. FLIAKOS	Executive Producer, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Dr. James JANKY	Assistant Director, Broadcasting & Engineering, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
Dr. Al McWILLIAMS	Content Coordinator, Program Component, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211

	Dr. James POTTER	Assistant Director, Broadcasting & Engineering, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
	Mr. Dail OGDEN	Director, Broadcasting & Engineering, STD Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
	Ms. Carolyn HILL	Federation of Rocky Mountain States 2480 W. 26th Avenue Denver, Colorado 80211
	Dr. Arthur BISHOP	STD State Coordinator-Utah Utah State Board of Education 1400 University Club Building 136 East South Temple Sal Lake City, Utah 84111
	Dr. William BRISH	RESA Satellite Director, Maryland 110 Water Street Cumberland, Maryland 21502
	Mr. Bert COWLAN	Communications Consultant 55 West 44th Street New York, New York 10036
	Ms. Lee LOVE	Consultant, AID 860 United Nations Plaza New York, New York
	Dr. George RATHJENS	Professor of Political Science Massachusetts Institute of Technology 9-435 MIT Cambridge, Massachusetts 02139
	Mr. Robert C. BUTMAN	Massachusetts Institute of Technology Lincoln Laboratory P. O. Box 73 Lexington, Massachusetts 02173
UNESCO-Paris	Dr. Gunnar NAESSELUND	Director, FDC, UNESCO Place Fontenoy Paris, France 75015
Agency for International Development	Ms. Janet ANDERSON	Chief Health Educator Office of International Health, HEW Room 18-82 Parklawn Building Fishers Lane Rockville, Maryland

	Dr. Clifford BLOCK	Educational Technology Officer Bureau for Technical Assistance, AID U. S. State Department Washington, D.C. 20523
	Ms. Annette BUCKLAND	Program Analyst, Educational Technology Group Office of Education & Human Resources Technical Assistance Bureau, AID Washington, D.C. 20523
	Dr. Eleanor K. GREEN	Chief Education Advisor, SA/TD/ID/ED Agency for International Development Department of State 20523 Washington, D.C.
	Dr. Stanley D. HANDLEMAN	Education Officer, AID ASIA/TECH/ED, AID. Department of State Washington, D.C. 20523
	Mr. Alfred HOTVEDT	Telecommunications Engineer AID, SER/ENGR SA-11 Department of State Washington, D.C. 20523
	Mr. David SPRAGUE	Educational Technology Officer AID, TA/EHR, Room 2489 Department of State Washington, D.C. 20523
	Ms. Jerry NATHAN	Conference Management Office Room 2884, AID Department of State Washington, D.C. 20523
Rapporteurs	Ms. Anna CASEY-STAHMER	Social Policy and Programs Department of Communication 100 Metcalfe Street Ottawa, Ontario, Canada K1A 0G8
	Dr. Heather HUDSON	Research Associate Stanford University Institute for Communication Research Stanford, California 94305
	Dr. Henry INGLE	Program Officer, Instructional Technology Projects Academy for Educational Development 1424 Sixteenth Street, N.W. Washington, D.C. 20036

Mr. Robert A. MOTT

Special Assistant to the
Project Director
Satellite Technology Demonstration
Federation of Rocky Mountain States
2480 W. 26th Avenue
Denver, Colorado 80211

Dr. Delbert D. SMITH

Satellite Applications Adviser
National Aeronautics and Space
Administration
Suite 300
2 East Gilman Street
Madison, Wisconsin