

68104-10750
Green
PD-AA6-187

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT PAPER FACESHEET

1. TRANSACTION CODE
C A: ADD
E: CHANGE
D: DELETE

2. DOCUMENT CODE
PP
3

3. COUNTRY, ENTITY
Regional/East and Southern Africa

4. DOCUMENT REVISION NUMBER
2

5. PROJECT NUMBER (7 digits)
698-0414

6. BUREAU/OFFICE
7. PROJECT TITLE (Maximum 40 characters)
Regional Remote Sensing Facility

8. SYMBOL
AFR

9. CODE
06

8. ESTIMATED FY OF PROJECT COMPLETION
FY 82

9. ESTIMATED DATE OF OBLIGATION
A. INITIAL FY 79
B. FINAL FY 82
10. QUARTER 3
(Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS \$000 OR EQUIVALENT \$ -

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FY	C. L/C	D. TOTAL	E. FY	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	455	205	750	1254	1110	2364
(GRANT)	370	380	750	1254	1110	2364
(LOAN)						
OTHER						
U.S.						
KOST (Centre)	50	36	86	50	270	320
OTHER DONORS						
TOTALS	50	36	86	50	270	320

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 79		H. 2ND FY 80		K. 3RD FY 81	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	754	876		750		540		650	
(2)									
(3)									
(4)									
TOTALS				750		540		650	

A. APPROPRIATION	N. 4TH FY 82		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVAL. DATE SCHEDULED
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) FN	424				2364		MM YY 96 8 10
(2)							
(3)							
(4)							
TOTALS		424			2364		

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PIO FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PIO FACESHEET.

1
1: NO
2: YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE
Alexander R. Love

TITLE
Director, REDSO/EA

DATE SIGNED
MM DD YY
01 2 19 79

15. DATE DOCUMENT RECEIVED
14 AID # 128 FOR AID # 5000
MENTS, DATE OF DISTRIBUTION

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 Project Summary and Recommendations	
1.1 Recommendations	1
1.2 Project Summary	1
1.3 Findings	2
1.4 Issues	2
2.0 Background and Project Strategy	3
2.1 Background	3
2.11 Development of the Regional Remote Sensing Facility (the Project)	3
2.12 Justification and need	3
2.13 Description of Facility Activities	6
2.14 The Regional Centre for Services in Surveying and Mapping (the Grantee)	10
2.15 Agreement between the Regional Centre for Services in Surveying and Mapping and the Regional Remote Sensing Facility	12
2.16 The Physical Plant	13
2.17 African Remote Sensing Council	14
2.2 Project Strategy	15
2.21 Project Purpose and Goal	15
2.22 Inputs and Outputs	16
3.0 Project Analyses	19
3.1 Economic Feasibility	19
3.2 Technical Feasibility	21
3.3 Financial Analysis	22
3.31 AID's Contribution	22
3.32 Host Organization Contributions	30
3.33 Other Donor Contributions	31
3.34 Reimbursement for Products and Services	31
3.4 Social Soundness Analysis	31
3.5 Environmental Analysis	33
4.0 Implementation Arrangements	34
4.1 AID Administrative arrangements	34
4.2 Technical Administration	34
4.3 Host Organization Support	35
4.4 Services Procurement	35
4.5 Project Implementation Schedule	36
4.6 Special Financial Arrangements	36
4.7 Evaluation	37

LIST OF ANNEXES

- A. Training Plan
- B. Job Descriptions for Contract-hire Personnel
- C. Original Project Agreement and Amendments
- D. ECA Remote Sensing Council Constitution
- E. Agreement Concerning the Establishment of a Regional Centre for Services in Surveying and Mapping
- F. Agreement between the Regional Centre for Services in Surveying and Mapping and the Republic of Kenya Regarding the Headquarters of the Centre The Privileges and Immunities (Regional Centre for Services in Surveying and Mapping) Order, 1975
- G. Agreement Concerning the Establishment of a Regional Remote Sensing User Assistance Facility at the Headquarters of Regional Centre for Services in Surveying Mapping
- H. AID Implementation Letters Nos. 1, 2, and 3
- I. Commodity and Equipment List
- J. NAS report entitled Resource Sensing from Space: Prospects for Developing Countries
- K. Personnel Staffing Table
- L. Original Project Paper entitled Remote Sensing for Resource Assessment and Management (931-1166)
- M. Logical Framework
- N. Consultant's report Design Requirements and Equipment Specifications
- O. Status of Spectral Data Corporation Contract and Personal Services Contract
- P. Initial Environmental Examination
- Q. Project Checklist
- R. Article from Current Anthropology entitled "The Use of Landsat Data in studies of Human Ecology"
- S. PES
- T. Source Waivers
- U. Telegram Gaborone 676 and letter

1.0 Summary and Recommendations:

1.1 Recommendations: The following actions are recommended herein:

A. Authorization and obligation of a grant in an amount not to exceed \$750,000 from FY 79 funds;

B. Approval of life of project funding, subject to the availability of funds, in an amount not to exceed \$2,364,000;

C. Approval of a nationality waiver to permit procurement of technical services from a non U.S. source in the approximate value \$160,000 (see Annex T for detailed justification).

1.2 Project Summary: The project proposed herein is a continuation of project No. 931-1156 authorized in June, 1977 in the amount of \$1,066,000. This project, which was designed to establish a Regional Remote Sensing Facility in a regional institution in Kenya, has not yet achieved its goals. This earlier project which had an estimated life of 3 and 1/2 years (FY 77-80) was measurably retarded due in part to serious delays in the procurement of goods and services. The new project will continue the activities of this Facility and fund them through FY 82.

The existing project and its proposed successor will provide training and technical assistance to facilitate the transfer of Landsat, remote sensing technologies to a regional organization known as the Regional Centre for Services in Surveying and Mapping (the grantee). This technology will assist governments of East and Southern Africa in improving their planning and natural resource management. The Grantee enjoys the status of an international institution under treaty with the OOK. Its membership, which will be the primary beneficiaries of the project, includes Kenya, Tanzania, Uganda, Malawi and Somalia. In addition, the project will also assist other countries of East and Southern Africa with which the U.S. has bilateral relations.

The new project, proposed herein, will cost a total of \$2,684,000 of which the grantee will provide a minimum of \$320,000 ^{1/} in-kind administrative support, and A.I.D. will provide \$2,364,000.

Project Inputs Will Be:

A. Thirteen person years of technical assistance through contracts with U.S. firms, PASA's and direct hire personnel. A.I.D. LOP cost estimated at \$360,000 including \$685,000 for contractual services;

B. Image processing and aerial photography services, and other costs estimated A.I.D. LOP costs \$500,000;

C. Equipment and commodities, A.I.D. LOP costs estimated at \$250,000;

^{1/} See section 3.32. Actual grantee contributions are anticipated to exceed this figure.

D. Training support costs, A.I. D. LOP costs estimated at \$699,000.

E. Administrative and overhead costs, A.I.D. LOP costs estimated at \$55,000 and Grantee in-kind costs estimated at \$320,000.

1.3 Findings: The Director of REDSO/EA has determined, based on the analysis contained herein, that this project is technically, economically, and financially viable. He has further determined that the purpose of this project is consistent with the A.I.D. Mandate and with the developmental plans and policies of participating African Governments.

1.4 Issues: A number of policy issues have been raised in this paper and its review. The most important of these are summarized below.

A. Is the Host Institution (Grantee) a Viable Institution Likely to Continue to Be Able to Provide the Necessary Degree of Financial Support Required by This Project? Further, Is There Sufficient Evidence of Regional Support of the Host Organization and of the Project by the Individual African Governments Involved?

There does exist the possibility that the Host Organization may not survive due to lack of constituent support (especially financial support) and through a lack of other foreign donor support. While this possibility exists, this paper discusses a number of feasible alternatives (Section 2.0) and it is likely that an accommodation will be reached to assure the continued survival of an acceptable Host Organization capable of providing the necessary financial support. These proposed actions are detailed in Section 4.0 of this paper. The degree of regional interest and acceptance of the project's activities has in the past been obscured by the constituents' dissatisfaction with the Host Organization. There is clear evidence of considerable member country interest in and use of the technologies offered by this project. This factor (regional support) will be one of the criteria examined in the process proposed to insure that A.I.D.'s risks in this project are minimized.

3. Has the Existing Project Made Satisfactory Progress?

The Remote Sensing Facility (the existing project) is only now becoming operational and cannot yet be judged on the achievement of its objectives. There have been some delays in project implementation. However, the delays in procurement of both services and equipment, detailed in Section 2.0, demonstrate that these delays were beyond the ability of the project staff to influence and that these problems have now been overcome. The most critical delay that occurred was that in contracting for technical services. A contract now exists with a U.S. firm and this contract will be extended by amendment under the project now proposed. The experience gained by existing project staff should serve to promote more efficient project implementation. Also, there is evidence of substantial interest among African users of the technology through their participation in training courses and cooperative projects.

2.0 Background and Project Strategy:

2.1 Background

2.1.1 Development of the Regional Remote Sensing Facility (the Project)

Following the approval of Project No. 931-1166 and the authorization of \$1,066,000 to begin the project, an agreement was reached with the host organization, the ECA sponsored Regional Centre for Services in Surveying and Mapping in Nairobi, Kenya. The agreement called for the establishment of a Regional Remote Sensing Facility at the Centre's headquarters and outlined the responsibilities of the parties. Preparations for the development of the Facility commenced in October 1977.

As of April 1979, three of the planned four expatriate technical staff are onboard, local secretaries, technicians and other support staff recruited, office and laboratory equipment ordered and partially in place, satellite imagery received and filed, remote sensing analysis lab and photo lab in partial operation, technical assistance being provided to client countries, training courses designed and started in March 1979, and cooperative projects with participating countries underway. In order to become fully operational, the Facility must recruit an expatriate photo specialist and counterpart staff, complete equipment orders, install additional laboratory plumbing and environmental controls, receive, install and test equipment, and train local technicians to operate lab equipment. Remaining equipment orders, completion of photo lab, recruitment of photo lab technicians and counterparts, and commencement of short-courses are subject to approval of FY 1979 funding.

2.1.2 Justification and Need

The importance and need for remote sensing technology by developing countries is fully documented in the report of the AID-sponsored National Academy of Science (NAS) study entitled Resource Sensing from Space: Prospects for Developing Countries (see Annex J). This report is the result of the most comprehensive analysis of remote sensing technology with respect to developing country needs, applications and capabilities. It includes chapters on the need for resource information in developing countries, experience with remote sensing technology, and recommendations for further technical assistance in remote sensing. The study has been used as the basis for estimating training needs and has provided a substantial amount of information on the technical, economic and social justification for the project. It has been referred to extensively throughout this paper and is considered a valuable supplement to the material presented herein.

There are basically four ways in which remote sensing technology can directly benefit participating countries. Most important is its potential for improving resource management decisions. For example many African countries live on the threshold of famine. Even minor climatic variations can result in starvation. As the technology develops, countries will acquire the capability to monitor vegetation growth and forecast crops. This will enable them to anticipate needs for food imports in order to provide relief measures in a timely and effective manner. Also, as populations increase there is a need to open new lands for settlement. It is vitally important that the suitability and carrying capacity of these new lands be assessed in advance or serious problems of erosion, overgrazing or others could develop. Remote sensing is an indispensable tool for assessing land suitability and carrying capacity.

All countries require maps and resource data and all are presently spending substantial sums on these activities. Landsat imagery is inexpensive and easy to interpret thus providing an economical alternative to conventional data sources. In practice, however, Landsat is generally used to supplement existing data sources to increase the accuracy and effectiveness of given surveys.

A third benefit is Landsat's potential for contributing to new discoveries of ground water and minerals. Many geologic features of interest to geologists are too large, too weathered or too covered by vegetation to be identifiable on the ground or even on aerial photographs. A comprehensive view, as can only be provided from space, is often required for the identification of important geologic structures. For example, faults may extend for hundreds of miles and be largely obscured by vegetation or drifting sand. Only when the entire structure is seen on a photograph can it be positively identified. Faults often act as underground dams and cause the formation of underground lakes and mineral deposits. When well drilling is carried out in proximity to faults, the chances of finding water are greatly increased.

Finally, the use of this technology is essential for the proper allocation of development resources. In many countries soil erosion and deforestation are known to be serious problems. Most countries, however, do not have adequate data to show A.I.D. and other donors how serious these problems are or how they compare with other areas competing for development funds. Properly interpreted Landsat imagery is an essential guide for all development planners.

These benefits have been recognized by A.I.D. as a result of its experiments and involvement in practical application since 1972. A.I.D.'s commitment to remote sensing was broadcast to the world during the 1976 AIDSAT demonstration. For this demonstration A.I.D., in cooperation with NASA, utilized the ATS-6 broadcast satellite to transmit messages offering direct support to 27 developing countries in Africa, Asia and Latin America. The U.S. Government's

commitment to sharing the benefits of space technology with African countries was also made by the Secretary of State at UNCTAD IV and other speeches in Africa in 1976.

As a result of its experience in remote sensing and to back up its commitments, A.I.D. is presently supporting the development of five regional remote sensing centers as well as several national centers world-wide, in addition to numerous resource development projects which employ remote sensing as a major data source.

The choice of the East and Southern Africa region for one of the regional centers is very appropriate. In this region there are many resource problems requiring immediate attention. Accelerated agricultural development as well as the construction of the Jonglai Canal are underway in Sudan. Ethiopia has experienced serious famine in recent years. Increases in human and animal population have caused serious land degradation problems in Kenya, Somalia, Tanzania and other countries. Botswana is attempting to estimate the carrying capacity of tribal lands in order to determine the size of plots needed to sustain family units and part of its land redistribution scheme. These and other problems require accurate and up-to-date resource data. For the reasons mentioned elsewhere in this document Landsat imagery is a very appropriate source of this data.

All of these countries have been using Landsat imagery in the solution of their resource problems. During the early days of the Landsat program, satellite imagery was widely distributed free to users willing to experiment with it. Later most countries began purchasing data on their own. Some have even acquired equipment for analyzing the imagery and have sent their personnel abroad for training.

While some of these attempts at utilization have been moderately successful, many have been frustrated by the lack of access to analysis and photo reproduction facilities. Furthermore, they have not had direct access to persons who can help with problems as they arise. The major attraction of a regional center, as compared with other forms of technical assistance, is that it places photo laboratories, analysis equipment and experienced personnel within reach of local resource managers. There is no substitute for having these elements in close proximity to users if the technology is to be transferred effectively.

Interest in remote sensing among African countries has been further demonstrated by the formation of the African Remote Sensing Council. (See Section I.1.1.) As early as 1973, ECA officials have been actively supporting the introduction of this technology in Africa through sponsorship of meetings and studies which have led to the formation of the Council. ECA has also cooperated with A.I.D. in agreeing to provide space and other support for the Remote Sensing Facility at the ECA-sponsored Regional Mapping Centre.

2.13 Description of Facility Activities

This project is primarily concerned with the development and operation of a Regional Remote Sensing Facility serving the countries of East and Southern Africa. When fully operational, the Facility will offer four to six specialized short courses per year in the various application areas of remote sensing, such as agriculture, hydrology and range management. On-the-job training, U.S. academic training, and training seminars will also be provided. Training is supported by photo laboratories for the production of Landsat imagery and aerial photographs, laboratories with specialized equipment for the analysis of Landsat imagery, and reference files containing imagery of all of the countries of East and Southern Africa. Facility personnel will follow up the training with regular visits to participating countries to provide continuing assistance in the utilization of this technology. The Facility has already begun distributing a quarterly newsletter to further maintain contact with users. The project will utilize only equipment and techniques considered appropriate for the level of development of the region.

Training

The training program has been designed to meet the estimates given in the WAS report (Table 9 page 133 of Annex J) for trained manpower requirements each year for a typical developing country. For each country the estimated requirement of 18-24 persons trained to non-degree level in visual analysis of Landsat imagery suggests a necessary capacity of about 120 persons per year in non-degree training to serve a group of five or six countries.

This non-degree training will consist primarily of a series of short courses and seminars. The short courses of two or three weeks duration will be of a more specialized nature than those previously offered by A.I.D. and other donor agencies. The planned courses will cover cartography, hydrology/water management, agriculture/land use, rangeland analysis, geology/soil science, oceanography/limnology, census/demographics and social science applications. Where possible, short courses will utilize consultants from the local region and from the U.S. and, as the project progresses, more input will come from the demonstration projects which will involve local personnel.

Short courses will be specifically oriented to the use of available local facilities and easily obtainable materials. Training efforts will be expanded in developing cost-effective user products with the additional support of the photographic and remote sensing laboratories of the Facility. This will be supported by training of technical staff to perform similar tasks within their own agency using available equipment.

Where the demand for training in any one country is high, it may be cost-effective for the course to be held in that country rather than in Nairobi. For example, Botswana has indicated that a group of 15-20 persons in a division of the Ministry of Agriculture would benefit from a 3-week short course (see Annex V). Such a specific request can be met by planning a course directly for the expressed need. Similarly, short courses for photo lab technicians are probably most effective if held in the laboratories where the technicians will be working.

Seminars to acquaint senior civil servants with the applications of remote sensing to operational programs are also necessary. For such people, it is essential that demonstration products are created and a brief but pertinent presentation given to appropriate small groups in their own premises. Follow-up to the briefings and seminars would be the participation of appropriate people in the short courses. Follow-up to the short courses would be the design of pilot projects in the countries and agencies from which the trainees came. In all phases of this training and its follow-up, the support of a fully equipped and staffed photo laboratory is essential for the production of appropriate training materials.

Training to degree level will become available within the region if the development of programs in the Universities of Nairobi, Dar es Salaam and Botswana continues. The Faculty intends to support the development of these programs by providing teaching materials and demonstration products. A short course for teachers of remote sensing is planned. The availability of degree level training in no way reduces the need for the Faculty short courses as large numbers of existing graduates in resource disciplines have no remote sensing training and require extension courses of the proposed 3-week short course format. It will be many years before there are sufficient graduates with remote sensing training in the region and there will be a continuing need for the training of technicians and support staff.

Training for graduates will be in the form of courses conducted in the U.S. Such courses vary from the one-month International Training Course at Sioux Falls, the 6-month (or longer) study courses in remote sensing offered at the University of South Dakota, and formal graduate studies for M.Sc. or Ph.D. degrees. At this point, it is anticipated that a majority of training for graduates will be of less than twelve-months duration and only in compelling circumstances will students be supported for such degree programs. An allocation equivalent to 100 person-months of training in the U.S. (see section 3.3 Financial Analysis) has been made for this purpose and is equivalent to the cost of training approximately twenty people in the six-month courses or ten people to Master's degree level. The actual allocation of these resources will be determined as the project activities reveal the training needs of each country.

As the training activity progresses, a second series of courses will be initiated and these will deal with major remote sensing program developments such as the planned launch of Landsat-D and the new types of data which will be made available. The continuous evaluation of the program will indicate the need for courses dealing with digital analysis of data and the Facility staff expect to offer such courses in the second or third year of the project.

The Facility is training its own laboratory technicians who will eventually be responsible for the operation of the laboratories. Selected individuals from participating countries will also receive on-the-job training from the Facility staff and may be seconded to the Facility for periods of six months or more.

User Services

In order to assist the development of remote sensing as a resource data base in the East and Southern Africa region, the Facility is developing a series of user services. Of major importance is the browse file which contains 1:1,000,000 scale prints of Landsat scenes with 30% cloud cover or less that are available for the region. This browse file, with more than 3,000 images, meets a major user need in the region and is an important asset in the provision of catalog and ordering advice for existing users. Users who wish to do so may borrow negatives to reproduce their own copies or the images may be viewed at the Facility. The browse file will be updated as new imagery becomes available.

Presently, the image analysis laboratory contains a multispectral color additive viewer and an overhead projector (with parabolic mirror system) and both are fully operational. A series of approximately 150 scenes from the region can be viewed using this equipment. A density slicer is also provided and, when fully equipped, the analysis laboratory will also contain a zoom-transferscope, binocular stereoscope, Richardson's light tables, and supporting reproduction equipment. (For a complete explanation of this equipment and its use, see Annex J, pp. 54-58.)

Files of remote sensing imagery and the analysis laboratory are supported by the map collection (a joint project with the Centre) and a small technical library. A growing collection of demonstration and display materials is available and it is planned to add a collection of materials from each demonstration project as well as reference resource materials for each nation in the region. Technical assistance and advice to users and project planners is also available and, although limited by the lack of supporting laboratory services, the Facility has already assisted government and quasi-governmental bodies such as the Tana River Development Authority (Kenya), the Water Resources Ministry (Kenya), and the Bureau of Resource Assessment and Land Use Planning (BRALUP-Tanzania). Assistance

has also been given to A.I.D. missions, for example, the writing of the Burundi Land Use and Resource Analysis PID (695-0104).

Laboratory Services

The present state of the photographic laboratories is described in section 2.16 below. When complete the laboratories will offer a full range of color and black and white photographic processing. This will permit the laboratories to provide several types of services, the most urgent need being to provide materials for training courses. Of equal priority is the need for the laboratories to provide user support and create fully detailed and accurately scaled prints in color or black and white to meet the specific needs of individual users. Once these functions are filled by the laboratories it is intended to have short course participants undertake "hands-on" work in the photo labs so that they will create products themselves and become aware of the detailed techniques and types of equipment required. Training of laboratory technicians will also take place in these laboratories.

The laboratories will be a major asset to the Facility and the region and a tangible item of technology transfer in accordance with the project goal and the NAS report. A program of experimental work adapting techniques to local conditions will be undertaken and the results incorporated into the training materials. At the end of the project, the availability of the laboratories will constitute a major donation by A.I.D. to remote sensing in East and Southern Africa.

Liaison

Liaison with governments and other national and international agencies will provide a continuous monitoring of the value of the program. It will provide a source of information to guide project activities and provide opportunities to relay information to participating countries at a decision-making level. Data products created in the photo lab for orientations and briefings will form part of the liaison activity. Liaison is necessary to encourage the creation of networks and linkages between East and Southern Africa users, NASA, the U.S. Geological Survey, U.S. universities, U.N. agencies and others interested in supporting the use of remote sensing. Contact between the Centre and other agencies will be maintained by occasional visits and the regular publication of a newsletter.

In order to ensure that the training is useful in developing the skills of resource managers and in improving the information flow to policy level planners, the liaison activity will monitor the extent to which the trainees put their skills to use. The design and implementation of demonstration projects with the full support of the photographic laboratories and user services of the Facility will be an important follow-on

from the training. The additional steps of publishing reports and disseminating results and products from these projects will also be undertaken by the Facility utilizing the facilities of the laboratories and user services.

2.14 The Regional Centre for Services in Surveying and Mapping
(The Brantee)

The need for the establishment of a Regional Centre for Services in Surveying and Mapping was originally recognized at the First United Nations Regional Cartographic Conference for Africa held in Nairobi in June 1963. Subsequently, Kenya, Tanzania, Uganda, Somalia and Malawi pledged their support for the Centre and formally became the first Contracting Parties by signing an agreement forming the Centre on April 18, 1975 (see Annex E). On October 17, 1975, the Kenya Government signed an agreement with the Regional Centre for Services in Surveying and Mapping authorizing the establishment of a temporary headquarters and granting it the usual privileges and immunities of an international organization. A copy of this agreement and the Privileges and Immunities Act is attached as Annex F.

Adequate accommodation has been leased at the Kenya Commercial Bank building situated along Enterprise Road, in Nairobi's Industrial Area. The Centre will operate from here until the proposed permanent site given by the Government of Kenya is developed.

The objectives of the Centre are as follows:

- to provide services in the field of surveying and mapping, including in particular but not limited to aerial photography, photogrammetry, and orthophoto-mapping, photo-interpretation and remote sensing, airborne geophysical surveys and electronic computation, first order geodesy, cartographic services, multi-color printing, and the checking, calibration and maintenance of surveying and mapping equipment;
- to provide training for nationals of the Contracting Parties in surveying and mapping;
- to carry out studies and research in surveying and mapping;
- to make available to the Contracting Parties data and results of the studies, research and tests carried out by the Centre; and
- to provide advisory services upon request on problems relating to surveying and mapping to the Governments of the member states of the Economic Commission for Africa and their agencies.

Day to day operation of the Centre is under the supervision of the Director General. Technical consultation is provided by a Technical Advisory Committee made up of technical representatives of the Contracting Parties and other organizations including the Facility. Control over the Centre's activities is maintained by a Governing Council made up of senior representatives of the Contracting Parties and chaired by the Head of the Natural Resources Division of the ECA.

In general, the aim of the Centre is to provide services to the region which are not generally available either commercially or through government agencies because of their technical complexity and their need for equipment which is not available locally. Also, there are many projects of a regional nature that require the kind of coordination and leadership that is best generated from an international organization. The Centre sees its continuing role, like the regional Remote Sensing Facility, as a focal point for the introduction and testing of new instruments and techniques. Also, the survey departments in many of these countries are lacking in modern equipment and technically trained staffs and will continue to require assistance with mapping problems for some time to come.

Pledges of nearly five million dollars worth of equipment have been made to the Centre by several European countries. These include photogrammetry equipment from Switzerland and West Germany, map printing facilities from Holland, aircraft from Finland and geophysical equipment from Sweden. If and when this equipment is installed and operational, the Centre will have a complete and modern photogrammetric mapping capability.

Unfortunately, political and financial problems in East and Southern Africa have delayed the implementation of the Centre and caused potential donors to postpone their contributions. The potential equipment donors wish to see more participation from the Contracting Parties and some Contracting Parties apparently are waiting to see more evidence of benefits from their investment.

While it is unlikely that this situation will continue unresolved, the potential impact on the AFD-funded Facility should be recognized. One consequence might be the loss of host organization support and the need for a small increase in funding to cover rental of the Facility's headquarters. Even this need is unlikely, however, because both the Government of Kenya (GOK) and the Economic Commission for Africa (ECA) have expressed a strong interest in the Facility. Either the GOK or ECA would likely host the Facility should the need arise.

Of the five Contracting Parties, only Kenya and Uganda have thus far paid their contributions. However, it is expected that Tanzania will soon become a financially participating member because the ECA is establishing a Regional Mineral Research Centre in Dodoma, Tanzania and Kenya's membership is being

sought. An agreement has recently been reached between the two countries to fully support each other's centre.

During the past year the Centre has also experienced some financial control irregularities. These have been uncovered during recent audits of the Centre's accounts. The situation has been carefully reviewed by the Governing Council and appropriate action taken to rectify the problems. Both the U.N. auditors and the AID Controller's Office have reviewed the situation with respect to possible involvement of the Facility. Since the Facility maintains an accounting system which is independent of the Centre and a separate bank account, no irregularities have been found. The A.I.D. Controller's Office informed AFDSO/EA by memo dated June 28, 1978 that "E.A.A.C. has carried out a review of the accounts of the Regional Remote Sensing Facility and found that the procedures followed are acceptable".

At the September 9, 1978 meeting of the Governing Council of the Centre, it was decided that a team headed by the Director General of the Centre should visit each of the Contracting Parties to encourage payment of their assessments. The team visit both member and prospective member countries in Southern Africa generating increased interest in the Centre.

A cartography workshop is planned by the Facility and will be designed to include maximum participation of the Centre to further focus attention on cartographic activities and help stimulate interest in the Centre. As additional countries develop resource inventory and mapping projects, there will be an increasing demand for the services of the Centre. For example, the aforementioned Burundi PID specifically encourages Burundi to obtain mapping services through the Centre.

2.15 Agreement between the Regional Centre for Services in Surveying and Mapping and the Regional Remote Sensing Facility

In March 1977, A.I.D. and the Centre jointly signed an agreement providing for the establishment of the Regional Remote Sensing Facility to be co-located with the Centre. The agreement which is attached as Annex 3 provides for the sharing of equipment, personnel and facilities between the two organizations. It also specifies the contribution A.I.D. will make to the Centre, that is, the Facility, and what the Centre's responsibilities are toward the remote sensing project. The agreement specifically provides sufficient autonomy for the Regional Remote Sensing Facility so that it is free to serve countries which are not members of the Centre and so that it cannot be compared to serve countries which are not among those having a bilateral development assistance relationship with the U.S.

In July 1977, a Project Agreement between A.I.D. and the Centre was signed which committed \$500,000 toward the project for contract services, commodities and other costs. Subsequent

amendments to this agreement brought the total A.I.D. contribution to \$986,000 for FY 77/78. A copy of the ProAg with amendments is attached as Annex C.

The co-location of the Centre and Facility is a technically sound concept. The science of remote sensing deals primarily with the interpretation and analysis of aerial photographs and Landsat images while mapping is the process of converting raw data into maps. Maps are a necessary end product of most remote sensing operations because they contain more readily quantifiable information and they are more easily understood by administrators and development planners. In recognizing this vital relationship, the project will encourage an even closer relationship between the Facility and the Centre. In March 1979 it was announced that the Director General of the Centre will retire effective June 30, 1979. The Centre intends to replace him as soon as possible and the position has already been advertised in newspapers throughout East and Southern Africa. While there is no indication of what effect this will have on the Centre, it is expected that ECA and the Centre's Governing Council will select a person capable of inspiring confidence in both donors and contracting parties thereby improving the Centre's viability.

2.16 The Physical Plant

The October 17, 1975 agreement (Annex F) between the Kenya Government and Regional Centre for Services in Surveying and Mapping provided for the establishment of the temporary headquarters of the Centre in Nairobi. The Centre now occupies three floors in the Kenya Commercial Bank Building in the industrial area. The total available floor space is approximately 1190 sq. meters. Approximately half of this space is presently available to the Regional Remote Sensing Facility.

This space accommodates offices for remote sensing specialists and supporting staff, classroom, data files and browse file, remote sensing laboratory, photo laboratory and miscellaneous duplicating and printing space. The Centre has retained space for offices, conference room, reception and communications rooms, photogrammetry laboratory, electronics calibration laboratory, technical library and field equipment storage area. The library and the photo lab are shared between the Facility and the Centre.

The Centre has recently reconfigured the space in the building to better accommodate the needs of the Facility. It has installed a classroom and sanctioned the use of its boardroom as a remote sensing seminar and briefing room. It has reconfigured the library to accommodate Landsat imagery files and repartitioned the browse file and Landsat image analysis area to improve efficiency. It has completely remodeled the ground floor of the building to provide black and white and color photo labs and printing and storage areas for the Facility.

As soon as FY 1979 funds are available the Facility will install the necessary plumbing, wiring and equipment in these labs.

The question of title to the equipment installed in the photographic laboratories and of other equipment, vehicles or supplies purchased by the Facility is complex. The present agreement calls for all such equipment to become the property of the Centre at the termination of the A.I.D. project. This is not necessarily an appropriate arrangement as there is some question about the future relationship between the Centre, the Facility, the East African Regional Remote Sensing Council and the Government of Kenya. It may be that some multi-agency agreement between these parties is the most appropriate method of disposal of the equipment and any new agreement with the Centre should reserve title to AID with all equipment, etc. to be allocated according to the recommendations of the end of project evaluation panel.

The Kenya Government has donated a fifteen-acre site north of Nairobi for the permanent headquarters of the Centre which will include the Facility. Preliminary drawings for the permanent headquarters have been completed and tentative plans call for the buildings to be completed by 1981. No funds have yet been pledged by other donors or budgeted by the Centre for final plans or construction making it doubtful that this target date will be met. The Government of Kenya has indicated that the present office space will continue to be provided as temporary headquarters for an indefinite interim period.

2.17 The African Remote Sensing Council

The constitution for an African Remote Sensing Council was adopted at an Economic Commission for Africa-sponsored meeting of Plenipotentiaries in Ouagadougou during the week of September 26, 1978. Six countries signed the constitution during the meeting and four additional countries had signed by February 1979 making it an effective document (Annex D).

The purpose of the Council is to coordinate all remote sensing in Africa and help focus development assistance support in more appropriate directions. The operational arm of the Council will be a group of regional management committees. Through these committees, the Council will finance and operate various remote sensing training centers and ground stations.

The Council presently plans to develop a network of five training centers made up of five existing national and regional centers located in Cairo, Nairobi, Kinshasa, Ile-Ife (Nigeria) and Ouagadougou. The Council has also sanctioned the development of Landsat ground stations in Nairobi, Kinshasa, and Ouagadougou although the Council has not yet begun to raise funds for either the training centers or ground stations.

It appears that the next action will be the formation of a small secretariat for the Council. This will be followed by a series of Council sanctioned regional initiatives directed toward the formation of regional management committees. These committees would then organize governing bodies to manage the ground stations and training centers in their respective sub-regions. The committees would also develop a formula for funding these operations -- probably subscriptions from member countries.

While the implications for this project are not yet clear, a probable scenario can be projected at this time. Kenya has been a major supporter of remote sensing from the beginning of the ERTS-1 program and is expected to continue to play a leading role. The GOK has tentatively scheduled a meeting for May 1979 to begin organizing a regional management committee. The GOK has budgeted approximately five million dollars toward the development and operation of a ground station. Once a committee is formed and means of financing agreed upon, the committee would seek to negotiate the necessary agreements with A.I.D. to transfer this project to its jurisdiction. The committee would also include the Mapping Centre so that cooperation between the Facility and the Centre would continue. The Committee, under GOK leadership, would then propose to develop a regional complex on the site the GOK has made available for the Mapping Centre and would include a ground station, the Facility and the Mapping Centre. Such a complex could become a very powerful force for the promotion of modern resource analysis techniques in East and Southern Africa. While the success of this venture is still speculative, both the ECA and the GOK have been persistently strong advocates of remote sensing for several years.

2.2 Project Strategy

2.21 Project Purpose and Goal

According to the National Academy of Sciences, "The primary base for the economic development of most developing nations lies in their natural resources. Yet these nations, on the whole, do not have thorough enough knowledge about the nature, quantity, and location of their resources to harness them effectively for the welfare and progress of their people." Without this knowledge, it is not possible to utilize resources effectively and development lags to the detriment of the entire population. Remote sensing, utilizing Landsat and other space systems, is recognized as the cheapest, fastest and simplest means of acquiring resource data. It provides the users of this technology with insights into our resource limitations, the dangers facing various ecosystems, and the urgent need for proper resource management in order to satisfy the human needs of today and tomorrow.

The purpose of this project is to implant the necessary skills and organizational capacities in the developing countries to enable them to take full advantage of this modern and very useful technology. Once the developing countries have the local capacity to interpret and analyze the data provided by the Facility, the countries will have a reliable base from which to make responsible management decisions concerning their agricultural and natural resources.

With remote sensing data, the planners and decision makers of the respective countries will be competently capable of making policy decisions which will have direct effect upon the people of their country. The policies and decisions of today will make for tomorrow's promotion of the country's land and water resources. Conservation and proper utilization of resources must begin with an awareness of the problem and an understanding of their nature and magnitude. Further elaboration on the linkages between the potential of remote sensing for development applications and the practical experience and methodology for its use in meeting the basic needs of the poor can be found in the Social Soundness Analysis section (3.4).

2.22 Inputs and Outputs (See also Table I)

a. AID Inputs

During the life of the project (698-0414) A.I.D. will contribute \$2,364 million toward the following:

Technical Services. 13 person-years of U.S. remote sensing contract, direct hire and PASA specialists at an estimated LOP cost of \$860,000. These specialists will perform the training, user assistance and liaison function of the Facility. See Annex B for job descriptions and Annex K for staffing table.

Commodities. An estimated LOP cost of \$250,000 will provide photographic, photo laboratory, image analysis, training, field and office equipment. See Annex I for detailed list. Other commodities will include Landsat imagery for the entire East and Southern Africa region and a four wheel drive vehicle.

Training. An estimated LOP cost of \$230,000 will provide 13 person-years of counterpart time. Counterparts will be trained to take over the operation of the Facility at the end of the project but will also assist the regular Facility staff in providing training, technical assistance and liaison. Eighteen person-years of Lab technician time will be provided at a cost of \$100,000. These technicians will also be trained to operate the laboratories during and after the end of the project. Forty person-years of short-term training at seminars and workshops and eight person-years of longer term training in the U.S. will be supported by the provision of travel and per

dium at an estimated LOP cost of \$369,000. (Trainees' host organization will be expected to provide salaries during their participation in training.)

Secretarial and Administrative Support Staff. Eleven years of local hire secretarial, accounting and other support staff will be provided at a cost of approximately \$55,000.

Image Processing and Other Costs. An estimated LOP cost of \$500,000 will provide for image processing aerial photography, vehicle rental, staff housing and miscellaneous costs.

b. Host Contributions.

Rental. The Mapping Centre, from its contracting party contributions, will continue to pay rental maintenance costs and utilities for the space occupied by the Centre and Facility. The LOP value of the portion of the space occupied by the Facility is estimated at \$100,000.

Administrative and Technical Support.

The prorated portion of the salaries of the Mapping Centre personnel which contribute to the operation of the Facility are estimated at \$120,000. These include the Director, general, technical coordinator, electrical engineer, lawyer, accountant, librarian, telephone operators, receptionists, guards, janitors, etc.

Commodities. Prorated costs of equipment being installed by the Centre and available to the Facility is estimated at \$100,000. This presently includes map printing and electronics equipment but may be augmented by other equipment as described below.

Construction.

While not included in the financial summary because funds have not yet been made available, it is the intention of the Centre to construct a new headquarters building at a cost of approximately \$5 million. The Facility would occupy or share approximately one-third of this space. Fifteen acres of land valued in excess of \$100,000 have already been donated for the headquarters building by the GOK.

c. Other Donors.

Section 2.15 describes the potential contributions of other donors to the Mapping Centre. Through the agreement now in effect between the Facility and the Centre, these contributions would also benefit the Facility.

Because of the Africa-wide interest in resources, it is expected that several more donors will contribute directly to the Facility. France has very recently offered to augment the staff of the Facility with consultants and assistance in acquiring European satellite data. The World Bank has also offered to cooperate with the Facility in image processing. IBRD has set aside \$300,000 for image processing in connection with a Kenya forestry project and if properly coordinated, the Facility could utilize the results of this processing thus saving its resources for other areas. CIDA is finalizing arrangements for a contribution to the electronics calibration unit of the Mapping Centre which would also benefit the Facility. IDRC has agreed to provide litho printing equipment and a technician for the Centre with the understanding that these services would be available to the Facility.

A major source of support for the project which is still relatively unexplored is cooperative projects with other countries and organizations. For example, in the pilot mapping project being conducted jointly with the Survey of Kenya, the Survey provides materials, technical staff and the use of its equipment. While value of this assistance is difficult to estimate at this time, it would be measured in tens of thousands of dollars. Another joint project being finalized at this time is the UNESCO/ UNEP-sponsored Integrated Project for Arid Lands (IPAL). The Facility will contribute satellite imagery and field staff to interpret the imagery. Under this agreement UNESCO and UNEP will contribute staff time, logistical support, and ground truth data. Another participant in the agreement, the Kenya Rangelands and Ecological Monitoring Unit (KREMU) will contribute computer processed imagery, aircraft support and field data. The project will provide analyzed data and a fieldsite for training. The Facility could not undertake a project of this magnitude with its own resources. The AID-sponsored environmental training project also proposes to contribute staff and satellite imagery toward Facility training courses.

As the ECA-sponsored African Remote Sensing Council develops, this could also become a source of financial support. As discussed in section 2.17, the Council proposes to finance the operation of its five regional training centers through regional management committees which would solicit member country subscriptions in the respective regions. Reimbursement for products and services combined with funds raised by the regional management committee are expected to fully sustain the Facility after termination of AID assistance.

d. Outputs.

Proposed outputs of this project over the life of the project are:

- 1) 500 Africans trained in the use of remote sensing technology.
- 2) Approximately 500 additional Africans exposed to the benefits of the technology through seminars, technical assistance visits and other means.
- 3) Complete file of Landsat imagery of the region.
- 4) A functioning user assistance facility containing photo labs, analysis labs, reference material and personnel trained to operate the facility.
- 5) 12 to 15 African countries assisted in the acquisition and use of Landsat imagery and in the development and operation of resource analysis projects.

3.0 Project Analyses

3.1 Economic Feasibility

The question of economic feasibility is addressed directly in the NAS report (Annex J, pp. 141-143) which draws attention to the distinction between tangible benefits such as the educational or scientific value of remote sensing technology which is particularly difficult to document. In addition to this is the learning curve in which the amount of remote sensing knowledge increases and with it the amount of remote sensing data utilized in many different ways. As the process continues and the data are increasingly used, the improved management decisions and the more soundly based plans should make the rural and urban poor the beneficiaries of remote sensing technology.

At the conclusion of this project, the tangible benefits will be:

- 1) An equipped, fully staffed and operating photographic laboratory for the processing of Landsat data;
- 2) an operational user assistance facility providing browse files of imagery for the region, ordering assistance, technical counseling and image analysis facilities;
- 3) data products in use and the results of demonstration projects published as a regional handbook on remote sensing applications; and
- 4) a group of persons trained in basic remote sensing skills now available to support any new program developments.

Tangible but not quantifiable benefits of the project will be:

- 1) an improvement in the data available to decision-makers planning large-scale projects (the benefits of this reflected in the improved decisions and the greater effectiveness of planning);
- 2) a liaison infrastructure and files of user contact information to support the international and cooperative use of remote sensing within the regions; and
- 3) a program of short courses and university training in remote sensing available in the region.

The intangible benefits will include:

- 1) a greater awareness of the uses, applications and limitations of remote sensing data leading to applications to research in universities and government institutions;
- 2) greater familiarity with remote sensing as a regional data base and therefore an improved perception of regional data systems and their utility; and
- 3) the value of a viable unit to the Regional Centre for Services in Surveying and Mapping which equips it for innovative experimental cartography using data from space vehicles.

The costs of generating these benefits are those costs of the photographic and imagery analysis laboratories and accompanying services which follow directly from an AID-sponsored design requirements and equipment specifications report (Annex N), and the NAS study (Annex J). These costs are documented in the financial analysis section following.

It is the intention of this project for the Facility to continue (with other donor assistance) once A.I.D. terminates its assistance in FY 1982. The African Remote Sensing Council, through its proposed regional management committees, plans to assume responsibility for financing ground stations and regional training centers. As discussed in Section 2.17, this appears to be the most likely source of financial support after the end of the project. By about 1980, the Facility will introduce a schedule of changes to partially recover the costs of image processing and technical services. This, plus subscription fees levied by the regional management committee and other donor contributions, should be sufficient to sustain the operation of the Facility beyond FY 1982.

The project cannot cause any injurious effects to the regional economy and appears to offer only benefits. The provision of the user assistance facility and the photographic laboratories will be a major asset to the Regional Centre for Services in Surveying and Mapping and the region. The anticipated benefits are so great that the provision of staff and supplies in this project represents a com-

paratively modest investment for the potential returns. The benefit-cost studies referenced in the NAS report (Annex J, p. 141) that were undertaken for NASA, U.S. Geological Survey and the U.N. Committee on the Peaceful Uses of Outer Space all have positive recommendations about the use of remote sensing technology in developing countries. They each conclude that the benefits are both desirable and large.

3.2 Technical Feasibility

The term remote sensing sometimes conveys a misleading impression of involvement in high technology. This project is more concerned with the visual analysis and interpretation of remotely sensed imagery such as Landsat rather than the actual sensing. Only the easily applied visual analysis techniques will be utilized until such time as a determination is made that other techniques are needed and justified.

The proposals for technical work in this project are all in accord with the NAS report which recommends visual analysis of remote sensing data as the major training requirement. Support for these recommendations can also be found in numerous articles in journals of various symposia such as the Environmental Research Institute of Michigan-sponsored International Symposia on Remote Sensing of Environment and the NASA-sponsored Landsat Investigations Symposia.

When laboratory facilities are fully developed, photographic and cartographic techniques will be used to produce annotated images which are easily understood and readily interpreted by the readers. If these are further processed to become photo-image maps then a whole new group of map products can be produced which are capable of illustrating environmental quality changes which take place as regions come under conditions of stress (e.g. drought) and similar dynamic aspects of large regions.

The acceptability of such products is illustrated by their wide adoption throughout the world. Teaching the techniques by which such cartographic products can be created will be a considerable asset to a region where resource mapping is limited and the annual change in such resources, as the total forested area, are not accurately measured. Providing such measures and illustrating these changes represents a significant improvement in the mapping capability of the region. In this context, the Facility is properly located within the Centre.

To the extent that the Facility staff have already worked with these techniques and created useful innovative photo maps, there is no difficulty in obtaining the technical skill to implement such work in Nairobi. The photographic support systems are available and the laboratory is being equipped to handle the detailed work. All the image analysis instruments being installed in the Facility are widely used in remote sensing projects and several such instruments are in use in the region.

The senior technical staff of the Facility are all qualified in various facets of remote sensing (see Annex B for position descriptions). They will be augmented by four counterparts with similar technical skills. Early in the project, the staff have been occupied developing laboratories, selecting and ordering equipment and satellite imagery, establishing contact with client countries through visits, acquiring and assembling training materials, and preparing imagery catalogs and other reference materials. In order to acquaint the potential users of the region with the services offered by the Facility and to help Facility staff better understand the needs of the region, a series of in-country seminars was started in March 1979. Because remote sensing training requires relevant training materials in the form of interpreted imagery and ground truth data, the Facility staff must become involved in actual projects where the necessary data and experience can be acquired. Two such projects were underway by March 1979. These are the mapping and vegetation monitoring projects described in section 2.22(b).

As this background is laid, the Facility is in a position to begin a series of specialized training courses in the various application areas. These courses will depend heavily on local material acquired in the projects mentioned above and processed in the Facility's laboratories. They will be of a more advanced level than the introductory workshops previously held in the region.

3.3 Financial Analysis

3.31 AID's Contribution

AID/DS has obligated \$1.066 million through FY 1978 for contract services, training, commodities and other costs. An additional \$2.364 million is requested at the minimum level to carry the project through to completion by the end of FY 1982. Table I summarizes AID and Host Organization contributions and the proposed expenditures are summarized in Table II. Prior to the submission of this request, the budget was carefully reviewed and substantial cuts made. The proposed budget reflects only the minimum amount of funding required to carry out the planned activities. Tables III and IV show a more detailed breakdown by line item and year. It was planned to introduce limited digital processing equipment in FY 1980 to satisfy the growing interest among African users, to give the Facility access to improved data products and to generally keep the Facility abreast of technological developments. The issue of whether digital processing equipment should be acquired by the Facility will now be addressed during the 1980 evaluation. Subject to the findings of the evaluation panel, REDSO/EA will make appropriate recommendations as to the purchase of equipment.

TABLE I

SUMMARY COST ESTIMATE AND FINANCIAL PLAN, FY 77-82
(US \$000)

<u>SOURCE</u>	<u>AID</u>				<u>HOST ORGANIZATION</u>		<u>TOTAL</u>
	<u>(931-1166)</u>		<u>(698-0414)</u>		<u>(Centre)</u>		
	<u>FY 77/78</u>		<u>FY 79/82</u>				
	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	
Personnel ^{2/}	545	35	860	385	-	120	1,945
Training	-	11	194	175	-	-	385
Construction & Rental	-	-	-	-	-	100	100
Commodities	315	65	200	50	50	50	730
Other Costs	-	95	-	500	-	-	595
	860	206	1254	1110	50	270	3,750

^{2/} Line items include an allowance for inflation and contingency

ESTIMATED TOTAL LIFE-OF-PROJECT FUNDING, FY 77-82

<u>AID(931-1166)</u>	<u>AID(698-0414)</u>	<u>HOST ORGANIZATION</u>	<u>TOTAL</u>
1,066	2,364	320	3,706

TABLE 11

PROJECTION OF EXPENDITURES BY FISCAL YEAR
(\$000)

<u>Fiscal Year</u>	<u>AID</u>	<u>Host Organization</u>	<u>Total</u>
1978	518	44	562
1979	926	86	1,012
1980	855	70	925
1981	605	70	675
1982	526	50	576
<hr/>			
TOTAL	3,430 ^{1/}	320	3,750

^{1/} Total reflects expenditures utilizing funds requested under this project as well as funds obligated under project 931-1166.

TABLE III
PROJECT BUDGET
(LCP \$5,400,000)

PERSONNEL	Actual Expenditure FY 77/78	Carryover as of March 1, 1979	Estimated Obligations				TOTAL
			FY 79	FY 80	FY 81	FY 82	
- Facility Director/Project Manager/	30	-	-	-	-	-	30
- SDC Contract for Tech. Staff/	270	-	240	200	130	65	955
Program Manager (12 mo \$382,000)							
Image Analysis Sp. (12 mo \$375,000)							
Consultants (9 mo \$368,000)							
Technical Services (+ mo \$345,000)							
- Photo Services Mgr. (24 mo PSC) 2/	97	-	-	-	60	-	232
- PASA Consultants	75	-	75	20	20	-	115
- Short term consultant (PSC)	23	-	-	-	-	-	23
- Counterpart 1/	-	-	50	40	60	30	230
- Local hire secretarial & technical 4/	26	9	20	30	50	55	160
TOTAL	371	9	365	290	370	200	1525
COMMODITIES							
- Technical and Lab Equipment	200	10	105	60	20	10	405
- Vehicle 5/	16	1	-	-	-	-	17
- Satellite Imagery & Ref. Material	70	35	5	-	20	10	140
- Field Equipment 6/	-	3	20	-	-	-	23
- Furniture & Office Equipment 7/	34	11	-	-	-	-	45
TOTAL	320	60	130	60	40	20	630
TRAINING							
- U.S. long term	-	-	30	40	60	64	194
- Local short courses 8/	-	11	20	40	50	55	186
TOTAL	-	11	50	80	110	129	380
OTHER COSTS							
- Aircraft & Auto rental 9/	7	3	30	30	25	25	125
- Travel 10/	2	8	30	20	30	20	110
- Contract staff housing 11/	24	-	50	20	40	10	144
- Laboratory development 12/	-	-	40	-	-	-	40
- Image Processing 13/	30	-	10	20	15	10	35
- Office & Lab Supplies 14/	10	-	10	10	10	5	45
- Misc. maintenance, etc. 15/	20	1	10	10	10	5	66
TOTAL	33	12	135	110	130	75	595
AID FUNDING TOTAL	974	92	550	540	650	224	2430
BEST CONTRIBUTIONS 16/							
- Rental of office, classroom, laboratory and library space occupied by the Facility	24	-	16	20	20	20	100
- Administrative and technical support (includes prorated portions of salaries of Director General, technical coordinator, electrical engineer, lawyer, accountant, librarian, telephone operators, receptionists, guards, janitors, etc.)	20	-	20	25	25	30	120
- Equipment (electronics and printing prorated)	-	-	50	25	25	-	100
TOTAL	44	-	86	70	70	50	320

1/ Project funded through FY 78, HHSO/EA operating expense funded thereafter.
 2/ Contract to be extended for LCP. Image analysis specialist to be terminated in June 1980.
 3/ Consultants reduced through project and technical services phased out in 1980.
 4/ PSC terminated in Dec. 1978. Will be replaced by Photo Manager under PASA with savings from PSC applied to PASA.
 5/ Local currency costs.
 6/ All items, where necessary, include allowance for inflation.
 7/ In addition to the above, participating countries will share training costs by paying salaries for approximately 500 man-months of training time. Also prospective donors have pledged over \$4.9 million worth of surveying and mapping equipment. Contracting parties of the Mapping Centre are expected to cover the cost of the new headquarters building estimated at \$5 million. There will also be demonstration/training activities, seminars and workshops in African countries for which contracting parties will contribute approximately \$300,000.

TABLE IV
TABLE OF EXPENDITURES
 (LCP \$3,430,000)

PERSONNEL	Actual Expenditure FY 78/79	Estimated Expenditures				TOTAL
		FY 79	FY 80	FY 81	FY 82	
- Facility Director/Project Manager/	80	-	-	-	-	80
- SDC Contract for Tech. Staff ^{2/} Program Manager (12 mo \$382,000) Image Analysis Sp. (12 mo \$375,000) Consultants (9 mo \$368,000) Technical Services (4 mo \$245,000)	270	220	220	180	65	955
- Photo Services Mgr. (24 mo PSC) ^{3/}	97	-	75	60	-	232
- PASA Consultants	75	-	20	10	-	115
- Short term consultant (PSC)	23	-	-	-	-	23
- Counterpart ^{4/}		15	65	70	80	230
- Local hire secretarial & technical ^{5/}	26	25	34	50	55	199
TOTAL	571	260	414	380	200	1,325
COMMODITIES						
- Technical and Lab Equipment	200	100	65	25	15	405
- Vehicle ^{6/}	16	1	-	-	-	17
- Satellite Imagery & Ref. Material	70	20	20	20	10	140
- Field Equipment ^{7/}	-	5	15	3	-	23
- Furniture & Office Equipment ^{8/}	14	6	5	-	-	25
TOTAL	320	132	105	43	25	630
TRAINING						
- U.S. Long term		10	50	70	64	194
- Local short courses ^{9/}		15	50	36	55	156
TOTAL		25	100	106	119	380
OTHER COSTS						
- Aircraft & Auto rental ^{10/}	7	25	40	28	25	125
- Travel ^{11/}	2	15	30	40	23	110
- Contract staff housing ^{12/}	24	30	38	40	12	144
- Laboratory development ^{13/}		40	-	-	-	40
- Image Processing ^{14/}	30	3	20	17	10	85
- Office & Lab Supplies ^{15/}	10	5	5	15	7	45
- Misc. maintenance, etc. ^{16/}	10	2	10	10	3	35
TOTAL	93	110	143	133	55	439
AID FUNDING TOTAL	974	548			439	3,430
HOST CONTRIBUTIONS 5/						
- Rental of office, classroom, Laboratory and library space occupied by the Facility	24	16	20	20	20	100
- Administrative and technical support (includes prorated portions of salaries of Director General, technical coordinator, electrical engineer, lawyer, accountant, librarian, telephone operators, receptionists, guards, janitors, etc.)	20	20	15	25	30	120
- Equipment (electronics and printing prorated)		50	25	25	-	100
TOTAL	44	86	70	70	50	320

100/ Project funded through FY 78, REDSO/EA operating expense funded thereafter.
 100/ Contract to be extended for LCP. Image analysis specialist to be terminated in June 1980,
 100/ Consultants reduced through project and technical services phased out in 1980.
 100/ PSC terminated in Dec. 1978. Will be replaced by Photo Manager under PASA with savings from PSC applied to PASA.
 100/ Local currency costs.
 100/ All items, where necessary, include allowance for inflation
 In addition to the above, participating countries will share training costs by paying salaries for approximately 500 man-months of training time. Also prospective donors have pledged over \$4.9 million worth of surveying and mapping equipment. Contracting parties of the Mapina Centre are expected to cover the cost of the new headquarters building estimated at \$5 million. There will also be demonstration/training activities, seminars and workshops in African countries for which contracting parties will contribute approximately \$300,000.

A concerted effort should be made to obtain contributions in addition to the amounts shown in this Project Paper from African participating countries and other donors. Following is a detailed description of the budget line items and their present status:

Technical Assistance

A personnel staffing table showing arrival times and length of tenure may be found in Annex K.

- Facility Director. The Facility Director was assigned to the project in September 1977. Salary and support costs were project-funded through FY 1978. In accordance with an AID/W decision, the salary and support costs are being charged against the REDSO/EA operating expense budget from FY 1979 onwards. It is expected that the AID direct-hire Facility Director will be replaced by an African counterpart no later than the end of FY 1981.

- Contract Staff. The total complement of three arrived at the project site during August and September 1978. The Program Manager and the Image Analysis Specialist are under a one-year contract with

Spectral Data Corporation. It is planned to renew this contract for the life of the project. The Photographic Services Manager terminated his contract in December 1978 and will be replaced as discussed above. Present contract staff cost the project approximately \$75,000 per person-year exclusive of housing and utilities (which are paid for directly by the project) and travel within the region.

- Consultants. The contract with Spectral Data Corporation includes approximately six person-months of consultants' time. A PASA has been negotiated with the U.S. Geological Survey for another eight months of consultants' time. Initially, six to eight months of consultants' time will be required per year to assist with workshops and to provide specialized technical assistance. The present contractual arrangement for consultants will be renewed as required but the need will be reduced later in the project.

- Counterparts. Advertisements have been circulated and applications are in hand from a number of qualified potential counterparts. At least two counterparts will be hired by the project during FY 1979 and two more during FY 1980. All four will be retained for the life of the project and expected to continue after AID assistance is terminated. The cost of a counterpart with up to Ph.D. level academic training and 3-5 years experience is estimated at \$20,000 per year.

- Local-hire secretarial and technical services. The present local complement includes one secretary, one administrative assistant, two laboratory trainees and one driver. At least three additional lab technician trainees and one typist will be required for the life of the project.

Commodities

- Technical and laboratory equipment. Most of the equipment needed to begin operations is either in Nairobi or on order. Some of this equipment has been procured through excess property channels. A corresponding reduction in the budget has not been made, however, because the condition of all the surplus equipment is not yet known. Therefore, it may be necessary to replace some of these items at an early date. The advantages of starting with surplus equipment are that it is available at an earlier date, and that some testing and experimentation is permitted before making a final selection of new equipment. Because the project deals with new technologies, it must maintain a flexible position with regard to equipment procurement. New instruments and processes are being developed which affect the equipment needs of the project. These needs will be evaluated as the project progresses and additional requests made if justified.

- Vehicles. One four-wheel drive vehicle has been purchased for off-road travel to remote project sites in addition to general project transport needs. Because the project headquarters are

situated some distance from town, there is also a need for a mini-bus to transport short course participants from the industrial area, where the Facility is located, to Nairobi proper where there is food and lodging accommodations. Public transportation is not adequate for this purpose. Budget allowance has been made for the periodic rental of a mini-bus for short course participants.

- Imagery and reference material. Seventy thousand dollars (\$70,000) has been obligated to the U.S. Geological Survey, EROS Data Center for the purchase of imagery. Additional imagery and imagery processing will be obtained from private sources. Reference material for the library is being ordered.

- Field equipment. Various items of camping and field and scientific equipment will be purchased as required.

- Furniture and Office Equipment. Most of what is presently needed has been procured. A few additional items will be required as the staff increases in size.

Training

- Long-term in U.S. The budget provides for approximately 100 person-months of long-term training in the U.S. This will include advanced degree academic training, attendance at training courses such as the International Training Course at the EROS Data Center and specialized non-degree training such as that offered by South Dakota State and other universities.

- Short course, travel and per diem. Travel and per diem will be provided as is customary in East and Southern Africa for short course and on-the-job training participants. The participants' host organizations will be responsible for salaries and later will be encouraged to cover travel and per diem as well. Approximately 250 subsidized and an equal number of non-subsidized trainees can be accommodated during the life of the project.

Other Costs

- Aircraft and auto rental. Aircraft rental will be required for travel to remote test sites for obtaining hand held 35 and 70 mm photography to supplement the satellite imagery and to travel to nearby countries when other forms of transportation are less feasible or economical. All aircraft rental will be in accordance with AID procedures. Periodic auto rental will be required to supplement Facility vehicles for field trips when training classes are large and for travel within countries of the region.

- Travel. This item provides for per diem and travel by commercial carriers for the Facility staff and consultants within the region.

- Staff Housing. This is being provided in accordance with

established AID standards in Nairobi and as provided in the expatriate specialists' contracts.

Miscellaneous. This item includes imagery processing, laboratory development, telephone, stationery, printing and office supplies, gasoline and vehicle maintenance. A major item was added during the January 1979 Governing Council meeting when the Council approved the development of a color photo lab within the building and agreed to reconfigure the space accordingly but did not approve funds for the installation of plumbing, hot water system, air conditioning, and other environmental controls. The cost of this work is estimated at \$40,000 and will be funded under this project.

3.32 Host Organization Contributions (Centre)

As described in Part 2.0 above, the AID-funded Regional Remote Sensing Facility forms a semi-autonomous branch of the Regional Centre for Services in survey and Mapping. According to the Project Agreement (see Annex C), the Centre provides office and laboratory space for the Facility, as well as various accounting, legal, library, and administrative services. At the present time, only the temporary headquarters and administrative staff have been provided to the Facility. In addition, the Governing Council has recently authorized the establishment of an electronics calibration unit at a cost of \$50,000 for equipment and \$50,000 per year for staff. This unit is presently being installed.

Annual Facility operating costs are estimated at \$340,000 including costs of salaries for administrative and clerical staff as well as a prorated share of the lease cost (\$20,000) of the Centre's facilities and utilities etc. The financial projections in the paper reflect no change in the present level of Centre support to this project's operating costs. This reflects the uncertainties surrounding the Centre's future and the identity of the Project's "host" in the future. It is obviously necessary that this host be prepared to assume a progressively greater share of the project's costs so that upon cessation of AID's support there will be no significant financial drain. Accordingly, it is assumed that actual host contributions for FY 80 onwards will exceed that shown in these tables and approach 30% of annual operating costs (\$270,000) of FY 82. The above figures assume an increase in African staff at/or near the end of the project.

Present member country contributions to the Centre total approximately one million dollars plus fifteen acres of land. This is approximately twenty-three percent of the total assessment to the member countries. From these contributions, the Centre pays in excess of \$200,000 for annual operating costs which includes \$32,000 annual rent and various services provided to the Facility.

It is difficult to predict exactly when the balance of the member country contributions will be forthcoming. For estimating purposes it is assumed that these contributions will be sufficient to cover operating costs of approximately \$250,000 annually as well as construction costs. The pending

actions described in Part 2.14 should stimulate these payments.

3.33 Other Donor Contributions

In addition to the member country contributions, the Centre presently has pledges of equipment from several donor countries described in Part 2.14 and 2.22(b). The value of these pledges is estimated at nearly five million dollars.

As indicated, various other countries have expressed an interest in conducting pilot and demonstration projects and in cooperating with or supporting the Centre and the Facility. During the course of the Project, all Eastern and Southern African participating countries are expected to assume an increasing share of the operating expenses, exclusive of foreign technical assistance. This would include participant travel and per diem, reimbursing the Facility for image processing and technical services, and core budget support.

3.34 Reimbursement for Products and Services

It is the intention of this project for the Facility to be free from the need for further AID support by the end of FY 1982. This will be accomplished partially by introducing charges for products and services. These charges will be introduced after the Facility is in full operation for at least one year. The charges for products and services will be nominal at first, perhaps ten percent of production cost, and then increased gradually. This plan has been used successfully by the EROS Data Center as a means of encouraging experimentation and use of the data potential users for a nominal investment. Detailed arrangements for charges will be worked out with the Technical Advisory Committee of the Centre and/or the ECA regional management committee. Additional financial support is expected from the African Remote Sensing Council (see Section 3.1).

The initial series of workshops will be offered free of charge with limited subsidy of participants travel and per diem. As the demand for training increases, the responsibility for participants costs will be transferred gradually to their employers or sponsoring institutions. This plan was also used successfully by the EROS Data Center where the first two international training courses were financed by AID. Now these courses are fully subscribed despite the lack of subsidization.

3.4 Social Soundness Analysis

Beneficiaries

The beneficiaries of this project may be conceived as falling into four categories: (a) high-level officials and managers who are made aware of the benefits of remote sensing technology, (b) the cadre of technicians and specialists trained directly by the program, (c) those groups, specifically the staffs of the national development agencies who acquire and utilize the technology, will become beneficiaries as the use of the technology increases throughout East and Southern Africa, and (d) the beneficiaries of development projects utilizing remote sensing technology and ultimately, the aggregate population of the entire region.

A major objective of the endeavor is to increase exposure to and availability of remote sensing techniques for use as development tools.

The user agencies themselves become beneficiaries as the technology is adopted in their development programs on a broader scale. These agencies will become responsible for and profit from the application of the newly learned skills.

The major concern of the program is to improve ultimately the conditions of the population of the countries served by the Regional Remote Sensing Facility. This will only be accomplished through the development programs themselves. For example, remote sensing imagery can be applied to hydrological studies of the area for assisting in detection of the amount of water available at a specific location, as well as an indication of the most appropriate usage of farming and grazing lands. Remote sensing techniques can also be used for forest inventory, evolving a practice of long-term management for firewood. Increasingly efficient utilization of geologic resources would also be made based upon remote sensing imagery, which would advance the overall economic viability of the concerned countries.

Therefore, the key to the program is the establishment of remote sensing applications within the development programs of various national and inter-state agencies. This will be done by having the Facility personnel work directly with the planners and decision-makers of the respective agencies. New techniques and project ideas will then be communicated to the various governmental agencies and universities as well as to the private sector. The new techniques and ideas should lead to projects that were not previously available and improve the efficiency and effectiveness of current programs, leading to a positive overall social impact.

It is recognized that there is a need to further relate the potential of remote sensing for development applications to the practical experience and methodology for its use in meeting the basic needs of the poor. To strengthen the linkages necessary to achieve systematic application of remote sensing technology and information within the development programs of various national and interstate agencies, social scientists with relevant training and experience will be utilized in the training, user services, and evaluation components of the project. A discussion of

possible applications is found in Annex R. The purpose of the social science input will be to:

- identify and assess useful applications of remote sensing technology and information;
- communicate such applications to relevant persons and institutions (e.g. through short courses, articles in the regional newsletter, and participation in symposia);
- monitor the effectiveness of selected applications in reaching the poor;
- participate in the scheduled project evaluations; and
- organize a "Social Science Applications of Remote Sensing for Development" section for the International Symposium on Remote Sensing of the Environment.

Population Growth

One of the important areas for the application of remote sensing technology will be the monitoring of population growth and distribution, and the assessment of the carrying capacity of various environments at the national and regional level. It is anticipated that these kinds of data will have important implications for the development of national policies regarding rapid population growth and the means to regulate it through family planning activities, health and education programs, etc.

Role of Women

The extent to which this program addresses the question of increasing woman's participation in the development process remains unclear. As one of the donors, however, AID can and will insist that greater attention is given to this subject. Certainly one step that AID plans to take is to encourage the inclusion of qualified women in the training and application programs.

355 Environmental Analysis

The project will create no adverse environmental conditions. Landsat and aircraft imagery will assist the participating countries in attaining an accurate knowledge of the physical characteristics and in halting the deteriorating trends of natural resources, forests, range and agricultural lands, and water. Systematic data collection by means of remote sensing technology will enable the participating countries to improve the management of their agriculture and natural resources. The physical plant of the Facility will not have any detrimental environmental effects. Photo lab wastes of approximately five gallons per week will be heavily diluted with water prior to disposal in the city's sewage system (see IEE, Annex p).

4.0 Implementation Arrangements

The project will be implemented by REDSO/EA which will provide all necessary legal, administrative and monitoring inputs.

4.1 AID Administrative Arrangements:

REDSO/EA has heretofore provided the services of a direct-hire employee as both project manager and project Facility director. It has been decided to divide these functions so as to permit the incumbent to devote his time to actual technical supervision of Project activities and to concentrate on the recruitment and training of counterparts who will eventually take over operation of the Facility. The role of project manager will be filled by another REDSO staff member to whom the incumbent will report and through whom routine progress reports, requests for disbursement of funds, etc. will flow.

4.2 Technical administration:

A four man team of technicians including the incumbent AID direct hire staff member will operate the Facility. Two staff members already on board, will be provided from the team fielded by the U.S. firm of Spectral Data Corporation and the third (position now vacant) through a PASA (or contract). In addition PASA and TDY consultants will be provided as required. The U.S. firm of Spectral Data (SDC) will also undertake to act as procurement agent for the project for all technical equipment and supplies required except those which might be manufactured by this firm. Normal AID procurement regulations will apply with source origin waivers, if required, sought through normal channels. The present contract with SDC expires in July, 1979. An amendment [through the life of the project (FY 82)] will be provided for under this new grant. This contract will be amended in accordance with Section _____ of the AID Procurement Regulation.

The Facility presently has a PASA with the U.S. Geological Survey for consultants services to assist with training courses. These consultants are needed to augment the Facility staff with specialized expertise such as in geology which is not presently available from the Facility. The Facility also obtains satellite imagery from the EROS Data Center under a purchase order. Both the PASA and the purchase order will be amended as needs require.

There is need to replace the photo lab specialist who terminated his PSC in December 1978. He cannot be replaced under another PSC under present limitations, but might be hired through a host organization contract, a PASA, or by expanding the Spectral Data contract. The arrangement selected will partially depend upon the present status of the individual selected but in any case will be determined after consultations between REDSO, the Facility and the Centre.

4.3 Host Organization Support:

Further administrative support is provided through the host organization, the Regional Centre for Services in Surveying and Mapping. The agreement establishing the Facility obligates the Centre to provide some support staff for the Facility (see Annex G, p. 6). The Centre provides the building to house the Facility and makes all necessary arrangements for cleaning, maintenance, remodeling to accommodate Facility requirements, telephone installation and security. The Centre also provides legal, accounting, library and miscellaneous administrative services. The agreement with the Kenya Government establishing the Centre (Annex E) provides for the duty free importation of equipment and materials for the Centre and therefore for the Facility. The Centre staff has already assisted with a number of customs clearances and no problems have been encountered.

As the Centre becomes operational and recognized within the region (or included under the aegis of the African Remote Sensing Council), its ability to administratively support the Facility will increase. For example, it could provide substantial assistance in travel clearances within East and Southern Africa and with making high level contacts. The Centre is presently designing a Laissez-Passer for use by Centre and Facility staff.

The constitution of the African Remote Sensing Council (see Annex T) provides for the formation of regional management committees to direct the activities of ground stations and training centers within their respective regions. It is assumed, but cannot be stated with certainty at this time, that the East African management committee will absorb and expand the Governing Council of the Centre. Due respect would be accorded agreements already in force such as those between the Facility and the Centre, but the committee would eventually become the governing body of the Facility. It is anticipated that the committee will be formed near the end of 1979.

With the exception of uncertainties in the future of the Mapping Centre and the development of the African Remote Sensing Council, the administrative arrangements outlined above are those which have been utilized for several months and found to be workable.

4.4 Commodity and Services Procurement:

Those commodities needed to initiate training and user assistance programs are either in place or on order. Some of this equipment has been obtained through excess property channels and will compliment that which was originally planned for the Facility. Approximately \$60,000 worth of satellite imagery has been procured through the EROS Data Center. New imagery will be acquired as it becomes available and will cost approximately \$20,000 per year.

Some delays have been encountered in the initial order of equipment through the Afro-American Purchasing Center (AAPC). The PIO/C for this equipment was submitted to AID/W in December 1977 but some of this equipment is not expected before June 1979. To overcome this problem, the Facility has requested an amendment to the Spectral Data contract naming that company as the Facility's procurement agent. In addition to speeding up procurement, this arrangement will allow for testing and adjusting of equipment in Spectral Data's labs. Also, Spectral Data will advise on future equipment needs for the Facility.

4.5 Project Implementation Schedule:

The proposed schedule of implementation for this new project is set forth below on pages 37 and 38. It is based on the assumption that authorization and obligation of FY 79 funds can be made by June 1979.

4.6 Special Financial Arrangements:

As discussed previously in this paper, there is concern as to the future of the host organization, the Centre for Surveying and Mapping. In order to address this problem without unduly delaying approval of new AID funds it has been agreed that certain measures will be taken to limit the degree of AID financial exposure. These measures include:

A. A requirement that a special, in depth, technical evaluation by outside experts be undertaken prior to obligation of FY 80 funds. This study will specifically address such issues as the progress of the project, the viability of the host organization and the degree of regional support. Only upon a positive finding by the Director, REDSO/EA with concurrence in these areas will FY 80 funds be obligated and disbursed. Obligation of funds for each fiscal year after FY 1978 will be subject to a prior written determination by the Director, REDSO/EA. In each annual evaluation, attention will be focused on the extent to which the Grantee has been able to assume a greater proportion of Project operating costs.

B. Semi-annual reports: The Director, REDSO/EA, shall submit semi-annual reports to the Director, AFR/RA, for appropriate distribution within the Africa Bureau. Such reports will describe project activities undertaken, progress toward regionalization of the activity and any problems relating to viability of the host institution.

C. A regular PES will be carried out annually and the results will be used by REDSO in determining whether continued AID financial support to this project is indicated. (FY 1980 evaluation will serve as PES for that year).

The following section describes the method proposed to carry out the special evaluation and PES.

IMPLEMENTATION SCHEDULE

6/15/79 Project Agreement Amendment executed.

6/15/79 Work on photo labs resumed (building modification completed by Mapping Centre in March. AID will commence installation of plumbing, wiring, etc.)

6/15/79 PIO/T for Photo Lab Specialists services drafted, signed and sent to AID/W.

7/1/79 SDC contract amendment executed.

7/1/79 Applications reviewed and first counterpart selected.

8/1/79 Training courses and preparation of training materials resumed.

8/1/79 Work on photo lab completed.

8/1/79 Work on cooperative projects resumed.

8/15/79 PIO/Cs for additional commodities prepared and sent to AID/W.

8/15/79 Advertisements for two additional counterparts circulated.

9/1/79 Photo Lab Specialist arrives at post.

9/1/79 First counterpart reports for work.

10/1/79 Applications reviewed and second and third counterparts selected.

11/1/79 3 lab assistant trainees recruited.

1/1/80 Color photo lab equipment arrived and being installed.

1/1/80 Second and third counterparts report for work.

1/15/80 Fourth counterpart position advertised.

3/1/80 Examination of host organization conducted.

3/1/80 Color photo lab equipment installed and tested and training materials being produced. Facility now fully self sufficient in photo processing.

5/1/80 Fourth counterpart reports for duty.

5/1/80 Evaluation conducted and any recommendations on funding changes made by REDSO/EA.

6/1/80 USGS PASA amended.

6/30/80 New increment of funding added to SDC contract.

1/1/81 Examination of host organization conducted.

6/1/81 Examination of host organization conducted.

6/1/81 Evaluation conducted. Financial support beyond EOP considered.

7/1/81 Counterpart Facility Director selected.

8/1/81 New increment of funding added to SDC contract.

3/31/81 Photo lab specialist departs and turns lab management over to counterpart.

1/1/82 Examination of host organization.

9/1/82 Final evaluation conducted. Final determination on future of Facility made.

9/30/78 AID project funding terminates. Facility operated on pipeline funding until exhausted. AID direct hire and contract staff depart. Host organization assumes funding responsibility and counterpart staff in full control of operation.

4.7 Evaluation:

A. Special Evaluation:

A necessary part of any program is a means of evaluating its progress toward meeting its goal. This serves to keep the program in line with its objectives, and provides both users and donor countries with a means to justify and critically assess the success of their investment. The Regional Remote Sensing Facility, because it is a unique venture, will be especially held up to scrutiny and its review system defined. Since the efforts of the facility will focus on training and user assistance, it is understood that satisfactory progress in those two areas is a prerequisite for project completion. Furthermore, since this is a "regional" Facility, it is necessary that an African Sub-regional organization be firmly established and operational. The regional organization's African members should demonstrate a willingness to undertake operational control and appropriate financial responsibility for the Facility. In addition, this and subsequent evaluations will focus on the progress made by the Grantee in assuming a greater proportion of Project operating costs.

It is believed that an in-depth evaluation by experts not associated with the Facility should take place within one year of the authorization of this project. This special evaluation should cover technical, organizational and financial aspects of the program specifically aimed at assessing training and user assistance, as well as the viability of the African regional organization. The terms of reference for such an evaluation should be prepared by the Director of REDSO, in consultation with AFR/RA. Obligation of funding FY 1980 will be subject to a determination by the Director, REDSO/EA, based upon the findings of the evaluation, that the project is being implemented in accordance with the implementation plan and that the host organization is viable or satisfactory alternate organization exists.

B. PES PLAN:

The next PES will be held in March/April 1980. Another evaluation will be held in October 1981 and a final evaluation of the project will be held as it concludes in FY 1982. Evaluation of short courses, user services and laboratory support will be a continuing process involving a great deal of feedback from training and liaison work. Each short course will be individually evaluated by questionnaire and interview with each participant. Each participant will be contacted six months and one year after attending a short course to determine the utility of the short course to his/her subsequent work. Opinions on future course content, materials, and need for auxiliary courses will also be obtained. This will be reviewed by the program staff and consultants at the conclusion of each short-course so that a constant review of the short course program is in progress during the program itself.

Although there has been slippage in achieving initial project output targets, no delaying effects are expected with respect to the achievement of the April 1980 goals.

April 1980 goals are as follows:

- 1) training program in full operation,
- 2) laboratory services in full operation,
- 3) user services in full operation,
- 4) locally recruited staff in on-the-job training and beginning to assume expatriate job positions,
- 5) report on the first set of short courses complete,
- 6) newsletters documenting progress should be available as a consolidated history of project,
- 7) progress with demonstration projects measured against success of projects, and
- 8) adoption of remote sensing technology in resource management agencies.

Means of verification:

- 1) Facility records,
- 2) survey of delegates opinions,
- 3) survey of users' opinions, and
- 4) nature and number of demands for further assistance.

Project Reports:

It is recommended that the review panel be drawn from IAS report authors, AID and REDSO/EA staff, and remote sensing experts in East and Southern Africa. The panel should not exceed five members.

October 1981 goals are as follows:

- 1) Landsat-D training program underway; second series of courses completed.
- 2) Landsat-D projects implemented.
- 3) regional symposium reviewing remote sensing activity in each nation complete and proceedings published.
- 4) user services meeting local needs.
- 5) national remote sensing centers in formation or established with Facility support.
- 6) expatriates primarily engaged in advisory tasks and support Facility in cost-recovery mode for most supplies and materials directed by management committee, and
- 7) move to permanent headquarters in the building of the Regional Centre for Services in Surveying and Mapping, and
- 8) participating African states have assumed greater share of operating costs.

Means of verification:

- 1) Facility records,
- 2) evaluation by a committee (including the Facility Director) drawn from user countries,
- 3) comments of ECA coordinator for remote sensing, and
- 4) comments of other African centres.

Final Evaluation:

A total project review of the following:

- 1) facility operation equipment status and use of user services to determine volume of activity,
- 2) project reports and liaison with cooperating agencies to obtain their own evaluation of the project,
- 3) benefits identified by users both in national and regional programs,
- 4) demand for continued services, and
- 5) ability of participating African states and possibly other donor entities to assume operating costs without need for foreign technical assistance.

The review should be undertaken by a panel which uses the Facility staff as a secretariat and information resource. The panel should be drawn from the remote sensing users in East and Southern Africa, AID missions and REDSO, and established North American experts in remote sensing. The panel should examine project records and should produce a report. The report should be reviewed by a committee drawn from authors of the NAS report and these persons should edit it (with the Facility Director and/or other staff) into a project evaluation and description document for publication (including a budget analysis and a benefits statement).

ANNEX A: TRAINING PLAN

The training of a substantial number of people each year in visual analysis of remote sensing data is recommended in the N.A.S. study (in Annex J). Using their figure of 18/24 persons p.a for a typical developing country and considering the region to be effectively six "typical" developing countries (allowing for the small populations of BLS and low levels of participation from French and Portuguese speaking countries) approximately 120 persons should be trained each year. In their report N.A.S. envisage this activity continuing over a decade, with an additional 2-5 persons per year trained to university degree level in visual analysis of remote sensing data. Cooperation between the Facility and the national universities if adequately supported by laboratory facilities and a program of secondment of staff from U.S. universities should achieve this target using the existing local university structure.

The aim of short courses is to meet the needs for information about, and training in, applications of Landsat and aircraft acquired remote sensing data. Because there are now large numbers of results reported from experiments in each discipline it is appropriate to organize short courses on a discipline base using specialists of international repute from U.S. universities, government agencies and industry. Facility personnel will liaise with such specialists and provide a suitable briefing on East and Southern African remote sensing data and its relationship to local problems and issues. The discipline areas which N.A.S. recommends have been reviewed in the context of the East and Southern Africa situation and it is proposed to offer training courses of a more specialized nature than those previously offered by A.I.D. and other donor agencies. The planned courses will cover:

- (i) Survey and cartography
- (ii) Hydrology/Water Management
- (iii) Agriculture/Land Use
- (iv) Rangeland Analysis
- (v) Geology/Soil Science
- (vi) Oceanography/Limnology
- (vii) Census/Demographic Applications

Each subject area will be reviewed three times during the life of the project. The first short course in each subject area will be of three weeks' duration. It will be a residential short course and most of these will be held in Nairobi. The

course content will be a review of discipline applications pertinent to the East and Southern African situation. Emphasis will be on the techniques which can readily be implemented with locally available resources.

In each of these first short courses the use of enhancement techniques for photographic products and the extension of these to offset litho printing and cartographic processing will be emphasized. The concept of a useful product will be the constant focus of each course attempting to create at least one such useful product for each participant. The target group for these courses is the group of scientist/managers who have control of major government programs in their discipline area.

Liaison before and after the course is intended to provide support and technical counseling for any participant who wishes to design a remote sensing program for his agency. Copies of materials presented or developed during the courses will be available and Facility staff will be able to assist with briefings within the agency if requested. Training of an agency's support staff to handle remote sensing data and reprocess it photographically will be undertaken by Facility personnel travelling to the agency to conduct two or three-day technical training courses.

The second series of short courses will review developments in the use of remote sensing data in the region and, will build from the first course and possibly extend into digital analysis of imagery and an examination of useful forms of output.

Because of the anticipated annual demand for the training offered by the first series of courses, these will be repeated. As the second series of courses begin, the repeats of first series courses will become the responsibility of counterpart staff.

A third series of short courses will be presented in 1981/2 on the characteristics of Landsat-D and analysis of its initial data flow. Each of these courses will have a discipline base and will be designated to explore the value of the Landsat-D sensors to discipline oriented studies of East and Southern Africa.

By FY 1982 training will be taken over by the parallel appointment of African staff. The A.I.C. Program Manager will devote his time and efforts to organizing regional seminars.

At this time the Regional Remote Sensing Facility should be established in the new headquarters building of the Regional Centre for Services in Surveying and Mapping. (This is discussed in Section II. A. 3. in the PP). A total of approximately 500 persons will have received short course training and an estimated 200 will have been trained in technical support staff roles. An additional 150 persons will have taken the second series courses and be able to make limited use of any digital analysis capability in the region. Key personnel will have received training about the landsat-D program technology and be involved in the series of projects and studies which will follow from this. Approximately 30-50 persons will have received the latter training.

Degree-level training will be achieved by local university programs and by secondment of graduates to the Facility for on-the-job training. Periods of six months to one year will be usual for this. Support of scholarships for Africans to undertake post-graduate study in North America or Europe will provide a further capacity for graduate training. Liaison with universities and the provision of remote sensing teaching materials for use in their courses will also be a part of the training plan with the Facility would support the university programs with the appropriate materials from short-course developments.

The overall training plan has the following specific objectives:

- . Introduce senior administrators to the nature and use of remote sensing data in relation to their program planning and directorship roles. This will include briefing them on the project design and technological developments.
- . Training departmental heads, section chiefs and other operational scientists in the use and applications of remote sensing data within their discipline and jurisdictional areas by providing discipline oriented short courses and seminars on a regional basis.
- . Train technical staff as necessary to support work following from the above points. This will be done by short courses held either on a regional or local basis depending upon demand and assuming 20 persons per course.
- . Develop programs for demonstration purposes and feasibility studies.

Provide syllabus and materials for in-house training courses for user agencies. These courses will be given by personnel trained by Regional Remote Sensing Facility courses.

Provide materials, syllabus and cooperation in establishing short courses in universities in each nation thus transferring part of the teaching role to existing staff in those universities.

SHORT COURSE PLANNING

The use of local consultants in addition to international consultants will occur wherever appropriate. Demonstration projects will be linked to course design and the discipline oriented regional short courses will ordinarily draw participants from the countries of East and Southern Africa. Courses will be oriented to the needs of scientists in government or in universities and would aim to present the range of uses of remote sensing data within their discipline. The costs, limitations and practical applications would be discussed in the course. Project design and implementation would also be important portions of course work.

Supply of data products, regional summaries of activity in the discipline, and the services of a browse file, data catalogue, ordering assistance and special product generation (and processing) are seen as integral parts of course work and its follow-up. Evaluation of each short-course is essential and the evaluation will continue through time. At the conclusion of each course participants will be asked to complete evaluation sheets and forecast their need for services from the Facility (including other short-courses). Outlines of particular projects or anticipated applications will be requested. Follow up activities will include a questionnaire six months later asking for a similar evaluation in light of the activity during the six month period. After one year the question of additional short-courses to follow on from the first would be pursued.

STAFF TRAINING

If a remote sensing program is to be successful, field and technical staff should be aware of the type of products available and of their use. Courses to meet this need will be specifically designed for an agency, division or program. These courses would be held within a given national agency or university and require that Regional Remote Sensing Facility personnel travel to the center to conduct these courses. A short course

about management of remote sensing materials including indexing, cataloging, reproducing and reprocessing data for reports, for field use, and for final cartographic editing will be an important supplement to the technical training course.

COURSES: AIMS AND OBJECTIVES

The overall aim of short-courses is to provide training for persons interested in applications of remote sensing and to train their support staff to make chosen applications possible. A subsidiary aim is to familiarize participants with the services of the Regional Remote Sensing Facility.

Specific objectives of short-courses can be identified as follows:

- . To provide discipline-oriented short-courses so that government, university and other interested personnel may learn about remote sensing techniques appropriate to their subject area.
- . To provide international level expertise within a framework which has been developed by Regional Remote Sensing Facility to relate applications directly to the African situation.
- . To support regional short-courses (which serve discipline interests) with local short-courses which provide technical training for support staff so that discipline applications can be implemented.
- . To serve as an operational link between the Regional Remote Sensing Facility and its users.
- . To develop curricula which can be passed on to government agencies for in-house training courses and to universities and colleges to facilitate the development of suitable courses.
- . To disseminate data products of the African region to the potential user community.
- . To foster regional cooperation in the design and implementation of remote sensing programs and to encourage the interchange of ideas and results flowing from work with remote sensing data.

- . To serve as an information channel and major link with international projects such as UNEP projects, the desertification study and other similar applications areas.
- . To relate remote sensing data analysis techniques directly to the available equipment in the region and to the major projects of interest to the nations of the region.

Longer-term training

A small group of people from the region who have a demonstrated proficiency in the analysis of remote sensing data should be encouraged to participate in on-the-job training. Any nation which establishes a remote sensing program is encouraged to second such persons to the Facility. They would be attached to an appropriate activity e.g. photo lab work, optical image enhancement and interpretation, browse file maintenance and ordering, etc. In addition they would be given appropriate instruction and supplied with pertinent materials. Total training time for such persons may extend for a period of six months.

Persons with established expertise would also be encouraged to become part of the Facility's staff (on secondment from their national agency). For such persons, a program of reading, briefings from experts attending as short-course instructors, technical counselling, and advice with the formulation of project plans would be appropriate. The use of the Facility's facilities for the completion of data searches, small-scale feasibility studies or the designing of specifications for remote sensing laboratory equipment would be appropriate endeavors for such persons. If truly successful, close links would develop and then be severed as the individual established an appropriate remote sensing laboratory or center within his own country or agency. Such a development would lead to the Regional Remote Sensing Facility acting as an information channel and technical counsel for these laboratories or centers.

Longer-term training has specific objectives as follows:

- . To provide research and development time and facilities for persons currently working with remote sensing data.
- . To aid in the development of national remote sensing centers by permitting senior staff to familiarize themselves with the equipment of the Regional Remote Sensing Facility.

- . To provide background training suitable for persons about to go overseas for further studies in remote sensing.
- . To enable university teachers within the region to extend their knowledge of remote sensing and to develop additional teaching products and participate in the design and presentation of short courses.
- . To facilitate the transition from A.I.D. personnel to local staff management of the center using on-the-job training appointees.

Image Processing and Laboratory Services for the Training Program

The hardware of the Regional Remote Sensing Facility will be used in training personnel on short courses and in the creation of demonstration products and materials in support of projects. The photo-lab and the multispectral viewers will be major support facilities for most of the activities of the center. Because a majority of final products in remote sensing work have some type of cartographic or sketch-map form and modern cartography has developed greatly with improved photographic techniques and the off-set litho process, many final products will require photo/offset processing.

Photo-optical processing of Landsat data appears to offer major advantages. Many of the photographic techniques can be readily learned by local photographers. Photo-processors and offset litho printers are also readily available in the local area. Thus, photo optical processing of images offers the most readily available technique in analyzing remote sensing data in many areas. Because remote sensing data must finally be turned into some visual product for most users there is sound justification for equipping the Regional Remote Sensing Facility this way.

As the project matures, the Regional Remote Sensing Facility will need to increase its equipment holdings to include more sophisticated processing systems which handle digital data. Many products from both the digital and optical data processing will eventually require cartographic embellishment and the links with the Regional Centre for Services in Surveying and Mapping should prove invaluable in this regard.

In summary, the objectives of the image processing activities can be listed as follows:

- . To provide an image enhancement service based initially on photographic products, for users in the region.

- . To provide demonstration products and teaching materials in support of liaison work, short courses and remote sensing courses in colleges, universities and training in government departments.
- . To enable short course participants to become familiar with the equipment and processes involved in photographic processing of remote sensing images.
- . To provide training for technical staff of user agencies in the techniques which will support planned programs.

User Services to Support Regional Programs

In addition to creating photographic products and photographic reprocessing of images the Regional Remote Sensing Facility must act as a regional data resource with browse file, catalog and ordering assistance activities which will enable users to easily identify and view scenes before ordering. Similarly technical data, recent publications and information leaflets should be available through the library and technical information service. Liaison with users will be maintained through an East and Southern African remote sensing newsletter Browse files, catalogs and library facilities will be as complete as possible. Files listing (1) personnel active in remote sensing projects, (2) areas being studied, (3) national programs and (4) available courses should also be maintained. Important information will be circulated in the newsletter which will help to maintain contact between users, user groups and agencies.

The newsletter will carry announcements of the time available on image analysis equipment for users who have appropriate training. Imagery analysis equipment will obviously be available for a limited amount of assistance to users. Consultation on user problems and related use of the image analysis equipment will be provided subject to the demands of the training and demonstration project programs.

The objectives of the user services activity can be stated as follows:

- . To provide a regional browse file, data catalog and ordering facility serving the needs of the region.
- . To provide a technical library serving the needs of the remote sensing specialists in the region.
- . To maintain liaison with, and information flow to the data users in the region by publishing a regular newsletter.

- . To keep a central file of users, projects and materials relating to remote sensing within the region and to liaise with appropriate agencies in the region and elsewhere in bringing together agencies with common interests and goals.
- . To make image analysis facilities available to users in the region with a limited amount of consultation with facility staff. This activity will be limited by the demands of the training and demonstration project activities.
- . To provide specialist advice where necessary and liaise with U.S. companies, universities or government agencies which provide specialist services not available in the region.

Information Transfer

The Facility will serve as a contact point for the region and maintain a constant link with NASA and other data sources such as the European Space Agency. When appropriate regional or national seminars on remote sensing developments, applications, and data management will be organized. The Landsat-D program will be discussed and appropriate briefings by NASA and other personnel will be organized as necessary.

The proceedings of such symposia, seminars or briefings will be published and circulated in the region and throughout the world.

Information transfer has the following objectives:

- . Provide seminars, symposia and workshops to keep a state-of-the-art-review of regional and international activity as current as practicable.
- . To disseminate the content of such meetings throughout the region and the world by publishing the proceedings.
- . To maintain a direct link with program developments by bringing appropriate NASA and other personnel to the region for briefings.

Demonstration Projects

In the performance of demonstration projects the Regional Remote Sensing Facility must pay attention to the distribution of the projects between member countries. The amount of involvement of existing staff and facilities from participating countries in the project must also be considered. Participation in the design and implementation of field work by Regional Remote Sensing Facility personnel is anticipated but only within the limits of available manpower and equipment. The support of demonstration projects by the Facility must be within the context of available resources.

All demonstration projects will publish a fully illustrated final report which will be circulated in the region and internationally. Together the demonstration projects should cover a representative range of discipline applications and the consolidated reports should constitute an East and Southern African applications directory for remote sensing projects.

The objectives of demonstration projects can be listed as follows:

- . To provide a demonstration of remote sensing project design, field work and data analysis in an operational manner.
- . To create a mechanism for detailed cooperation and liaison between national agencies and the Facility.
- . To provide opportunities for government agency personnel to utilize remote sensing technology in achieving government program goals.
- . To create a handbook of reports which may be used as an applications manual for East and Southern African remote sensing projects.
- . To provide a representative coverage of disciplines amongst the demonstration projects.
- . To provide opportunity for each nation to participate individually or jointly in the demonstration projects.
- . To establish the viability of remote sensing data in meeting the objectives of current national agency activities.

The integration of all the Facility's functions in this way will provide complete training in all aspects of remote sensing from an initial academic discipline base to the organizational aspects of and operational programs supported by the Regional Remote Sensing Facility. The program is coherent and self-strengthening as the personnel who will staff the Facility by 1982 will be thoroughly familiar with it, will have participated in its operation and served to direct its development.

ANNEX B
JOB DESCRIPTIONS FOR CONTRACT-HIRE PERSONNEL

Program Manager (Allan Falconer - Spectral Data Corp):

This position is under the direction of the AID direct-hire Facility Project Director. The position will involve teaching East and Southern Africans to utilize remote sensing data, providing demonstration projects, consulting with high level government officials on resource problems, and conducting services and workshops. Six three-week workshop/seminars will be held during the first year at which faculty from leading U.S. universities will attend.

Image Analysis Specialist (Tom Hart - Spectral Data Corp.):

This position is under the direction of the AID direct-hire Facility Project Director. The position will involve providing technical assistance to users of the Regional Remote Sensing Facility's remote sensing laboratory and participating in demonstration of projects and services as requested. The appointee will report to the Program Manager.

Photographic Services Manager (vacant)

This position is under the direction of the AID direct-hire Facility Project Director. The position will involve the establishment and supervision of a photographic services laboratory, teaching trainees photographic techniques and participation in liaison work, and short-courses and seminars as appropriate. Production of demonstration data products and limited experiments to define products suitable for East and Southern African needs will be the responsibility of the Photographic Services Manager.

ANNEX C

PROJECT AGREEMENT AND AMENDMENTS

(On file with AFR/RA)

CONSTITUTION OF THE AFRICAN REMOTE SENSING COUNCIL

Preamble

THE AFRICAN STATES on whose behalf this Constitution is signed:

RECALLING United Nations General Assembly resolutions 2915 (XXVII) and 3132 (XXVIII) on international co-operation in the peaceful uses of outer space,

REAFFIRMING United Nations Economic Commission for Africa Conference of Ministers resolution 280 (XII) on the establishment of regional remote sensing centres,

AWARE OF the importance of the development of their natural resources for the economic and social development of their respective territories,

RECOGNIZING the fact that the natural resources of their respective territories should be fully explored in a co-ordinated manner by means of the most advanced technologies available,

REALIZING that these can best be achieved by co-operation among African States through the establishment of an African Remote Sensing Council,

HEREBY AGREE as follows:

Article I

Establishment

There is hereby established a Council to be known as the African Remote Sensing Council (hereinafter referred to as "the Council"), which shall operate and be governed in accordance with the provisions of this Constitution.

Article II

Objectives

The objectives of the Council shall be:

- (a) to harmonize the remote sensing policies for its member States;
- (b) to act as an effective machinery for the implementation of a comprehensive remote sensing policy for its member States;

(c) to promote the exploitation and development of and to co-ordinate remote sensing activities in the territories of its member States for the better exploration and development of their natural resources and those of economic interest to more than one of its member States;

(d) to foster the establishment of close relationship between its member States in all matters relating to the remote sensing of natural resources and of such common services or organs as may be necessary or desirable for the co-ordination, harmonization and development of remote sensing activities in the territories of its member States;

(e) to use remote sensing technology to monitor the environmental effects arising out of the exploitation of the natural resources of its member States;

(f) to promote the establishment within the territories of its member States of regional remote sensing receiving, processing, training and user assistance centres and to co-ordinate the activities of such centres where they already exist within the territories of its member States;

(g) to ensure that all the advantages of remote sensing technology are made accessible to its member States; and

(h) to promote and encourage the training and exchange of personnel, ideas and experience among its member States on all aspects of remote sensing.

Article III

Membership and associate membership of the Council

1. The Council shall be composed of such African States that adhere to this Constitution as provided for in Article XVIII of this Constitution.

2. African intergovernmental organizations active in the field of remote sensing or interested in such activities may become associate members of the Council on such conditions as the Council may determine and as provided for in Article XVIII of this Constitution.

Article IV

Obligations of member States of the Council

The member States of the Council shall co-operate in every way with a view to assisting the Council in achieving its objectives. They shall in particular:

- (a) take all such steps as may be necessary to implement the decisions of the Conference of Plenipotentiaries;
- (b) facilitate the collection, exchange and dissemination of information;
- (c) submit such available reports and data on remote sensing which are not classified as confidential by the member States concerned, as may be required by the competent organs of the Council;
- (d) make available training and research facilities on such terms and conditions as may be agreed upon with the competent organ of the Council;
- (e) make available national personnel that may be necessary for the operations and activities of the Council on such conditions as may be agreed upon with the competent organ of the Council;
- (f) pay their annual contributions as determined by the Conference of Plenipotentiaries on the basis of a previously agreed formula and such special contributions as may be determined by the Conference of Plenipotentiaries or by mutual agreement for programmes or projects carried out in their territories and ensure a proper accounting for any grants or loans received from, or through the good offices of the Council; and
- (g) accord such facilities, privileges and immunities as may be required under Article XIII of this Constitution.

Article V

Organs of the Council

1. The supreme organ of the Council shall be the Conference of Plenipotentiaries (hereinafter referred to as "the Conference").

2. The Council shall have the following subsidiary organs:
 - (a) The Governing Board,
 - (b) The Technical Advisory Committee,
 - (c) The Secretariat,
 - (d) Regional Management Committees, and
 - (e) such committees of the Conference of Plenipotentiaries or of the Governing Board as may be established by either of them.

Article VI

The Conference of Plenipotentiaries

Composition and meetings

1. Each member State of the Council shall designate its principal minister responsible for matters relating to remote sensing or such high ranking official as it may determine, to represent it in the Conference. Such Minister or high ranking official may be accompanied at meetings of the Conference by alternates, experts and advisers.
2. (1) The Conference shall elect from among its members its bureau which shall consist of the President, the first Vice-President, second Vice-President and third Vice-President of the Conference. The President and Vice-Presidents of the Conference shall each hold office for a term of two years and may be eligible for re-election for a further term of two years only.
 - (2) In electing the President and Vice-Presidents of the Conference regard shall be had to the equitable geographic distribution of these offices.
 - (3) A member State of the Council elected to the office of President or Vice-President of the Conference shall be represented in that office by its representative on the Conference.
 - (4) The offices of President and Vice-Presidents of the Conference shall be honorary.
3. (1) The Conference shall meet at least once every two years as directed by the President of the Conference who shall also preside over the meetings of the Conference. The Conference may hold extraordinary meetings on the request of the President of the Conference or two thirds of its members.

(2) When the President of the Conference is for any reason unable to perform his functions under this paragraph, the first Vice-President, the second Vice-President or the third Vice-President of the Conference in that order, shall perform the functions of the President of the Conference.

(3) Each member State of the Council shall have at the Conference only one vote.

4. The Executive Secretary of the United Nations Economic Commission for Africa and the Administrative Secretary General of the Organization of African Unity or their representatives shall be entitled to attend and participate at meetings of the Conference without the right to vote.

5. Representatives of associate members of the Council may be invited to attend and participate at meetings of the Conference without the right to vote.

6. Subject to the provisions of this Constitution, the Conference shall adopt its own rules of procedure for all its meetings including rules relating to the time, place and notice of meetings, quorum and voting.

Article VII

Conference of Plenipotentiaries - Functions

In exercise of its powers, the Conference shall:

(a) outline the policies governing its activities and those of its subsidiary organs and ensure the implementation of such policies;

(b) review and approve the programme of activities, budget and accounts of the Council;

(c) consider proposals relating to the objectives of the Council and make recommendations as to their implementation by the member States of the Council,

(d) determine the annual and other contributions to be paid by member States and associate members of the Council;

(e) appoint the Secretary-General of the Council and his principal assistants and prescribe for them their terms and conditions of service, determine the other offices of Secretariat and prescribe administrative and other rules governing the operation of Secretariat;

- (f) determine the location of the headquarters of the Council;
- (g) establish such committees of itself as it may deem necessary for the purpose of achieving the objectives of the Council, delegate some of its functions to such committees as may be appropriate and prescribe for them rules for the conduct of their activities;
- (h) subject to the provisions of this Constitution, approve rules governing the financial, administrative and other activities of the Council including the entering into contracts by the Secretary-General of the Council on behalf of the Council and the establishment of relationships between the Council and co-operating States and organizations referred to in Article XII of this Constitution which are desirous of assisting the Council or its member States in achieving the objectives of the Council;
- (i) determine the conditions for the admission of associate members of the Council;
- (j) designate the co-operating States and organizations referred to in Article XII of this Constitution which may serve on the Governing Board; and
- (k) generally perform such other functions as may be necessary, desirable or incidental to the achievement of the objectives of the Council or which may contribute thereto.

Article VIII

Governing Board - Composition and functions

1. The Governing Board shall consist of:
 - (a) eight member States of the Council elected by the Conference of Plenipotentiaries for that purpose having regard to equitable geographical distribution, for a period of four years;
 - (b) the member State of the Council in whose territory the headquarters of the Council is established;
 - (c) each of the member States of the Council where there is established a regional remote sensing receiving, processing, training or user assistance centre and the activities of which are co-ordinated by the Council in pursuance of the provisions of this Constitution;

(d) ex officio, the Executive Secretary of the United Nations Economic Commission for Africa or his representative;

(e) ex officio, the Administrative Secretary General of the Organization of African Unity or his representative, and

(f) such co-operating States and organizations as may be designated by the Governing Board.

2. The Governing Board shall meet at least once a year or as may be necessary for the efficient discharge of its functions.

3. Only those members of the Governing Board elected or designated under the provisions of sub-paragraphs (a), (b) and (c) of paragraph 1 of this Article shall each have a vote and the right to vote.

4. Subject to the provisions of paragraphs 2 and 3 of this Article, the Governing Board shall determine its own rules of procedure including that for the convening and chairmanship of its meetings and for the conduct of business thereat.

5. Subject to the directions of the Conference, the Governing Board shall:

(a) submit for the approval of the Conference the programme of activities, budget and accounts of the Council;

(b) mobilize and assist in the mobilization of assistance from co-operating States and organizations referred to in Article XII of this Constitution;

(c) present to the Conference a report on the activities of the Council and on the implementation of its policies;

(d) propose for the approval of the Conference the annual contributions to be paid by member States of the Council in accordance with a formula to be agreed upon, rules governing the financial, administrative and other activities of the Council and the establishment of relationships between the Council and co-operating States and organizations referred to in Article XII of this Constitution;

(e) determine the representation of the Council at meetings to which it is invited;

- (f) appoint the staff of the Secretariat other than the Secretary-General of the Council and his principal assistants;
- (g) perform such functions as may be delegated to it by the Conference.

6. The Governing Board may delegate some of its functions provided for under subparagraphs (f) and (g) of paragraph 5 of this Article to the Secretary-General of the Council.

Article IX

The Secretary-General and secretariat

1. The Secretary-General of the Council shall be the head of the secretariat and shall be responsible in the discharge of his functions to the Conference. He shall be secretary of the Conference, the Governing Board, and the Technical Advisory Committee and such other subsidiary organs of the Council and the Board as may from time to time be established.
2. Subject to such directions as the Conference may give, the Secretary-General shall be the legal representative of the Council.
3. Except as provided for in this Constitution, the Secretary-General shall not be subject to the control or direction of any organ or of any member State of the Council.
4. The Secretariat shall:
 - (a) subject to the general direction of the Governing Board, be entrusted with the administration of the Council;
 - (b) undertake studies and research on the co-ordination of and development of remote sensing activities of the member States of the Council and make proposals to the Conference through the Governing Board;
 - (c) keep up-to-date with current developments generally in remote sensing techniques and other matters that may be of interest to the Council, and keep the member States of the Council informed of such developments;
 - (d) propose to the Governing Board the programme of activities and draft budget of the Council;

- (e) submit for consideration by the Governing Board the accounts of the Council and proposals on the annual subscriptions to be paid by the member States of the Council in accordance with a formula to be agreed upon;
- (f) prepare and submit to the Conference through the Governing Board, an annual report on the activities of the Council;
- (g) submit to the Governing Board draft rules governing the financial, administrative and other activities of the Council;
- (h) provide secretarial and other services for the Conference, the Governing Board, the Technical Advisory Committee and other subsidiary organs of the Council established under this Constitution, and convene their meetings; and
- (i) perform any other functions that may be delegated to it by the Conference or the Governing Board.

Article X

Technical Advisory Committee - Composition and functions

1. The Technical Advisory Committee shall consist of:
 - (a) an expert designated by each member State of the Council;
 - (b) a representative of such regional remote sensing receiving, processing, training and user assistance centres established within the territories of any of the member States of the Council and the activities of which are co-ordinated by the Council in pursuance of the provisions of this Constitution;
 - (c) one representative each of the United Nations Economic Commission for Africa, the Organization of African Unity and such African intergovernmental organizations which are associate members of the Council;
 - (d) one representative of each of the co-operating States and organizations referred to in Article XII of this Constitution and with which the Council maintains active co-operation as provided for under the provisions of paragraph 1 of Article XII of this Constitution.

2. The Technical Advisory Committee shall meet at least once every year and at the beginning of each meeting, shall elect from among those of its members designated in pursuance of the provisions of sub-paragraph (a) of paragraph 1 of this Article, its Chairman.

3. Subject to the provisions of paragraph 2 of this Article, the Technical Advisory Committee shall determine its own rules of procedure.

4. The Technical Advisory Committee shall examine and formulate recommendations as appropriate, on any matter relating to the objectives of the Council that may be referred to it by the Governing Board and the Secretary-General of the Council or proposed by any member State of the Council. It shall also consider the scientific and technical aspects of the draft programme of activities of the Council and their financing and shall submit its views and recommendations thereon to the Governing Board through the Secretary-General of the Council.

Article XI

Regional Management Committee

1. There shall be for each regional remote sensing receiving, processing, training or user assistance centre the activities of which are co-ordinated by the Council in pursuance of the provisions of this Constitution, a Regional Management Committee which shall consist of a representative from each member States of the Council covered by the activities of such centre.

2. A Regional Management Committee shall, subject to the general directives of the Governing Board:

(a) review, direct and control the financial, technical and other activities of its centre, and

(b) present to the Governing Board an annual report on its activities.

3. A Regional Management Committee shall determine its own procedure and the frequency of its meetings.

Article XII

Co-operating States and organizations
and special relationship with the United Nations
Economic Commission for Africa

1. In pursuance of its objectives, the Council may seek and maintain active co-operation with Governments or States not parties to this Constitution and with worldwide and regional intergovernmental organizations and non-governmental organizations, as well as other institutions (collectively referred to in this Constitution, as "co-operating States and organizations"), which are desirous of assisting the Council or its members in achieving the objectives of the Council.
2. The Council may enter into arrangements with co-operating States and organizations, defining methods of co-operation in general or relating to individual activities or projects.
3. The Governing Board may decide to entrust the United Nations Economic Commission for Africa on behalf of the Council with:
 - (a) the collection of and the accounting for contributions due from member States of the Council under the provisions of this Constitution;
 - (b) seeking assistance from co-operating States and organizations for the implementation of approved projects of the Council and acting as executing agency in respect of such projects in respect of which it has been able to obtain assistance from co-operating States and organizations under the provisions of this sub-paragraph.
4. The United Nations Economic Commission for Africa shall, through its representative, keep the Council and the Governing Board, as the case may be, informed of contributions and assistance received and acts undertaken by the United Nations Economic Commission for Africa under the provisions of paragraph 3 of this Article.
5. The Council may enter into arrangements with the United Nations Economic Commission for Africa to the effect that the said Commission shall, within the limits of its resources, assist the Council in the implementation of this Constitution and in its activities.

Article XIII

Status, capacity, privileges and immunities

1. To enable it to achieve its objectives and perform the functions with which it is entrusted, the Council shall possess in the territory of each member State of the Council juridical personality in international law. To these ends, the status, capacity, privileges, immunities and exemptions set forth in paragraphs 2 to 11 of this Article shall be accorded to the Council in the territory of each member State of the Council.
2. The Council shall for the purposes of this Constitution have the capacity:
 - (a) to enter into contracts;
 - (b) to acquire and dispose of immovable or movable property; and
 - (c) to institute legal proceedings.
3. The Council, its property and assets shall enjoy immunity from every form of legal process except insofar as in any particular case it has, through the Secretary-General of the Council, expressly waived its immunity:

Provided however that no measure of execution shall be taken against the property and assets of the Council without the consent of the Secretary General.
4. The headquarters of the Council shall be inviolable. The property and assets of the Council shall be immune from search, requisition, confiscation, expropriation, and any other form of interference whether by executive, administrative, judicial or legislative action.
5. The archives of the Council, and in general all documents belonging to it or held by it, shall be inviolable.
6. The Council, its property, assets, income and transactions shall be exempt from all taxation and from customs duties and prohibitions and restrictions on imports and exports necessary for the exercise of its functions. The Council however shall not be exempt from the payment charges for services rendered.

7. Representatives of the member States of the Council who are not otherwise officials of the United Nations or of the specialized agencies of the United Nations, shall enjoy such privileges and immunities necessary for the exercise of their functions with respect to the Council.

8. Staff members of the Secretariat of the Council who are not otherwise officials of the United Nations or of the specialized agencies of the United Nations shall enjoy according to their rank, such privileges and immunities as are necessary for the exercise of their functions with respect to the Council.

9. Without prejudice to the foregoing provisions, the member States of the Council undertake to accord to all representatives of the member States of the Council, all staff members of the Secretariat of the Council and of such regional remote sensing centres the activities of which are co-ordinated by the Council in pursuance of the provisions of this Constitution who are not nationals of the member State of the Council concerned, representatives of the Organization of African Unity and co-operating States and organizations, and experts providing advice or assistance to the Council, such facilities and courtesies as are necessary for the exercise of their functions in connexion with the Council.

10. The Secretary-General of the Council shall have the right and duty to waive the immunity of any staff member of the Secretariat of the Council who is not an official of the United Nations or of a specialized agency of the United Nations in cases where in his opinion the immunity would impede the cause of justice and can be waived without prejudice to the interest of the Council.

11. All persons undergoing training or taking part in a scheme for the exchange of personnel at any regional remote sensing centre the activities of which are co-ordinated by the Council in pursuance of the provisions of this Constitution and who are not nationals of the country concerned, shall be accorded by the member States of the Council on a reciprocal basis, such facilities for entry, sojourn and exit as are necessary for their assignments.

12. Officials of the United Nations or specialized agencies of the United Nations performing functions in connexion with the Council shall respectively enjoy appropriate privileges and immunities provided under the Convention on Privileges and Immunities of the United Nations and the Convention on Privileges and Immunities of the Specialized Agencies.

13. The Council shall co-operate at all times with the appropriate authorities of the member States of the Council to facilitate the proper administration of justice, secure the observance of national laws and prevent the occurrence of any abuse in connexion with the privileges, immunities and facilities mentioned in this Article.

14. The Secretary-General of the Council shall conclude with the member State of the Council in whose territory the headquarters of the Council is established an agreement concerning the privileges and immunities to be granted in relation to the headquarters.

Article XIV

Withdrawal and suspension of membership

1. Any member State of the Council may withdraw from the Council at any time after the expiration of two years from the date of its adhesion to this Constitution by giving written notice of its withdrawal to the Secretary-General of the Council who shall forthwith inform all member States of the Council and the Executive Secretary of the United Nations Economic Commission for Africa of the receipt of such notice of withdrawal.

2. Withdrawal shall become effective one year from the date of receipt by the Secretary-General of the Council of the notice of withdrawal:

Provided that any member State of the Council withdrawing from the Council shall nevertheless remain liable for the fulfilment of its financial obligations to the Council including the payment of assessed contributions in respect of the entire year in which the notice of withdrawal takes effect.

3. (1) The Conference may by a two-thirds majority of the votes of all the member States of the Council suspend a member State of the Council who has, inspite of written reminders, failed to meet its financial obligations towards the Council for three consecutive years, fails to fulfil any other obligations under this Constitution or fails to comply with the decisions of the Council. The same majority shall be required for a decision of the Conference to revoke the suspension imposed on a member State of the Council.

(2) The suspension of a member State of the Council shall not relieve that member State from the fulfilment of its financial obligations incurred prior to its suspension unless otherwise decided by the Conference.

(3) The suspension or the revocation of a suspension with respect to a member State of the Council shall be communicated by the Secretary-General of the Council to all other member States of the Council and the Executive Secretary of the United Nations Economic Commission for Africa.

Article XV

Amendment of the Constitution

1. This Constitution may be amended by a two-thirds vote of all member States of the Conference.

2. No proposed amendment to this Constitution shall be considered by the Conference unless it shall have been notified to all the member States of the Council at least three months prior to such consideration.

3. The Conference shall determine when an amendment to this Constitution shall come into effect.

Article XVI

Dissolution

1. The Council may be dissolved by agreement of three quarters of all the members of the Conference and upon such agreement, the Conference shall appoint a sub-committee for the liquidation of the Council and prescribe for it its terms of reference.

2. Properties, equipment and other facilities belonging to the member States of the Council which are used for the purposes of the Council, shall upon the dissolution of the Council, revert to such member States.

Article XVII

Settlement of disputes

1. Any dispute that may arise concerning the interpretation or application of any of the provisions of this Constitution which cannot be settled by the member States of the Council concerned shall be submitted to the Conference.
2. If the Conference cannot reach a decision on the dispute or if the decision of the Conference is not accepted by the member States of the Council concerned, one of the parties to the dispute may request that the matter be submitted to arbitration by an Arbitral Tribunal whose members shall be nominated as follows:
 - (a) one arbitrator nominated by each party; and
 - (b) an arbitrator, who shall be the Chairman of the Arbitral Tribunal chosen by agreement between the Arbitrators nominated by the parties.
3. If the nomination of the members of Arbitral Tribunal is not made within a period of three months from the date of the request for arbitration, any party to the dispute may request the President of the Conference to make the necessary nominations except that in cases where the Council is a party to the dispute the nominations shall be made by the Administrative Secretary-General of the Organization of African Unity.
4. The decision of the Arbitral Tribunal shall be binding on the parties to the dispute.
5. The provisions of paragraphs 1 to 4 of this Article shall be without prejudice to the choice of any other mode of settlement that the parties concerned may jointly decide upon in keeping with the spirit of this Constitution.

Article XVIII

Final and transitional provisions

1. This Constitution of which the Arabic, English and French texts are equally authentic shall be deposited with the Executive Secretary of the United Nations Economic Commission for Africa.
2. This Constitution shall be applied provisionally when signed on behalf of at least ten of the States referred to in paragraph 1 of Article III of this Constitution and shall remain open for signature at the office of the Executive Secretary of the United Nations Economic Commission for Africa.
3. This Constitution shall enter into force definitively twelve months from the date of its provisional application if ratified, accepted or approved on behalf of at least ten of the States referred to in paragraph 1 of Article III of this Constitution, with respect to such States.
4. Instruments of ratification, acceptance or approval shall be deposited with the Executive Secretary of the United Nations Economic Commission for Africa.
5. A State referred to in paragraph 1 of Article III of this Constitution which is desirous of becoming a member State of the Council after the coming into force of this Constitution, may do so by depositing with the Executive Secretary of the United Nations Economic Commission for Africa its instrument of accession to this Constitution.
6. After the coming into force of this Constitution, an African intergovernmental organisation desirous of becoming an associate member of the Council may send a written application to the Secretary-General of the Council. The Secretary-General of the Council shall thereupon seek the approval or otherwise, of the application by the Conference and upon an application being approved, the African intergovernmental organization shall become an associate member of the Council and shall be so informed by the Secretary-General of the Council.
7. The Executive Secretary of the United Nations Economic Commission for Africa shall transmit certified copies of this Constitution and information concerning ratification, acceptance, approval or accession to this Constitution to member States and associate members of the Council and all member States of the United Nations Economic Commission for Africa.

8. The Executive Secretary of the United Nations Economic Commission for Africa shall call the first meeting of the Conference and, until the Secretariat of the Council is established, its functions shall be performed by the secretariat of the United Nations Economic Commission for Africa.

IN WITNESS WHEREOF the undersigned being duly authorized by their respective States have signed this Constitution on the dates appearing under their signatures, on behalf of their respective States.

ALGERIA

CONGO

ANGOLA

DJIBOUTI

BENIN

EGYPT

BOTSWANA

EQUATORIAL GUINEA

BURUNDI

ETHIOPIA

CAPE VERDE

GABON

CENTRAL AFRICAN EMPIRE

GAMBIA

CHAD

GHANA

COMOROS

GUINEA

GUINEA-BISSAU	RWANDA
IVORY COAST	SAO TOME AND PRINCIPE
KENYA	SENEGAL
LESOTHO	SEYCHELLES
LIBERIA	SIERRA LEONE
LIBYAN ARAB JAMAHIRIYA	SOMALIA
MADAGASCAR	SUDAN
MALAWI	SWAZILAND
MALI	TOGO
MAURITANIA	TUNISIA
MAURITIUS	UGANDA
MOROCCO	UNITED REP. OF CAMEROON
MOZAMBIQUE	UNITED REP. OF TANZANIA
NIGER	UPPER VOLTA
NIGERIA	ZAIRE
	ZAMBIA

**AGREEMENT CONCERNING THE ESTABLISHMENT
OF A REGIONAL CENTRE FOR SERVICES IN
SURVEYING AND MAPPING**

AGREEMENT CONCERNING THE ESTABLISHMENT
OF A REGIONAL CENTRE FOR SERVICES IN
SURVEYING AND MAPPING

Preamble

THE CONTRACTING PARTIES to this Agreement:

CONSIDERING the necessity of accelerating the development of the extensive natural resources of Africa in order to stimulate economic development and progress in the region;

NOTING the importance of services in surveying and mapping as an effective means of fulfilling the aspiration of African countries for rapid economic development and social progress;

RECOGNIZING the advantages for the region to be derived from the availability of such services within Africa;

RECOGNIZING further that the establishment of ~~the Regional Centre for Services in Surveying and Mapping~~ would serve these purposes;

HAVE agreed as follows:

ARTICLE I

Establishment and Objectives of the Regional
Centre for Services in Surveying and Mapping

1. A Regional Centre for Services in Surveying and Mapping (hereinafter referred to as the "Centre") shall be established in accordance with the terms of this Agreement.
2. The objectives of the Centre shall be:

(a) To provide services in the field of surveying and mapping, including in particular, but not limited to aerial photography, photogrammetry and orthophotomapping, photo-interpretation and remote-sensing, airborne geophysical survey and electronic computation, first order geodasy, cartographic services, multicolour printing and the checking, calibration and maintenance of surveying and mapping equipment;

(b) To provide training for nationals of the Contracting Parties in surveying and mapping;

(c) To carry out studies and research in surveying and mapping

(d) To make available to the Contracting Parties data and results of the studies, research and tests carried out by the Centre; and

(e) To provide advisory services upon request on ~~problems relating to surveying and mapping to the Governments~~ of the States members of the Economic Commission for Africa and their agencies.

ARTICLE II

Site of the Centre

1. The headquarters of the Centre shall be at Nairobi in the Republic of Kenya (hereinafter referred to as the "host country").

2. The Centre shall, by agreement with the Government of the host country, make appropriate arrangements for the provision of premises, facilities and services required for the proper and efficient operation of the Centre.

ARTICLE III

Status and Organization of the Centre

1. The Centre shall be composed of a Governing Council, a Technical Advisory Committee and a Director-General and shall operate under the aegis of the Economic Commission for Africa.
2. To enable it to fulfill its purposes and the functions with which it is entrusted, the Centre shall possess in the territory of the State of each participating Government juridical personality independent of the parties to this Agreement and shall not be considered as forming part of any Government or of the United Nations. To these ends, the status, privileges, immunities and exemptions set forth in paragraphs 3 to 13 of this Article shall be accorded the Centre in the territory of the State of each Contracting Party.
3. The Centre shall have the capacity:
 - (a) To enter into contracts;
 - (b) To acquire and dispose of immovable or movable property; and
 - (c) To sue and be sued.
4. The Centre, its property and assets shall enjoy immunity from every form of legal process except insofar as in any particular case it has expressly waived its immunity:
Provided however that no waiver of immunity shall extend to any measure of execution.
5. The premises of the Centre shall be inviolable. The property and assets of the Centre shall be immune from search, requisition, confiscation, expropriation and any other form of interference whether by executive, administrative, judicial or legislative action.

6. The archives of the Centre, and in general all documents belonging to it or held by it, shall be inviolable.

7. (a) Except as otherwise provided in this paragraph, the Centre, its assets, income and other property shall be exempt from all forms of direct taxes: Provided however that such tax exemption shall not extend to the owner or lessor of any property rented by the Centre.

(b) Articles imported by the Centre for official purposes shall be exempt from customs duties and other levies and from prohibitions and restrictions on imports and exports, it being understood that customs duty shall be payable at the appropriate rate on all or any of the articles imported in accordance with this sub-paragraph, if such articles are sold or disposed of locally, unless they are sold to persons or bodies entitled to purchase such goods without the payment of duty.

(c) The Centre shall in respect of any transaction to which it is a party, be exempt from taxes, recording fees and documentary taxes.

8. The Members of the Governing Council of the Centre who are not otherwise officials of the United Nations or of the Specialised Agencies of the United Nations attending meetings of or convened by the Centre shall, while exercising their functions and during their journey to and from the territories of the Contracting Parties, enjoy the following privileges and immunities:

(a) Immunity from personal arrest or detention and from seizure of their personal and official baggage;

(b) Immunity from legal process of any kind in respect of words spoken or written and of acts performed by them in their official capacity such immunity to continue notwithstanding that the persons concerned may have ceased to be representatives of the Contracting Parties;

(c) Inviolability of all papers and documents;

(e) Exemption in respect of themselves and their spouses from immigration restrictions, alien registration or national services obligations;

(f) The same facilities in respect of currency or exchange restrictions as are accorded to representatives of foreign Governments on temporary official missions;

(g) The same immunities and facilities in respect of their personal baggage as are accorded to diplomatic envoys;

(h) In this Article, the expression "member of the Governing Council" shall be deemed to include all representatives, deputy representatives, advisers, technical experts, and secretaries of delegations.

9. Staff members of the Centre who are not otherwise officials of the United Nations or of the Specialised Agencies of the United Nations shall:

(a) be immune from legal process in respect of words spoken or written and all acts performed by them in their official capacity;

(b) be exempt from taxation on salaries and emolument paid to them by the Centre;

(c) be immune from national service obligations;

(d) be immune together with their spouses and dependent children from immigration and alien registration;

(e) be accorded the same privileges in respect of exchange facilities as are accorded to officials of comparable ranks forming part of diplomatic missions to the Contracting Parties;

(f) be given, together with their spouses and dependent children and relatives, the same repatriation facilities in time of international crisis as diplomatic envoys;

(g) have the right to import for personal use, free of duty and other levies, prohibitions and restrictions on imports, within the first three months of arrival:

- (i) their furniture, household and personal effects;
- (ii) one motor vehicle purchased before customs clearance or from bonded Warehouse.

10. Without prejudice to the foregoing provisions, the Contracting Parties undertake to accord to all members of the Governing Council, all staff members and experts providing advice or assistance to the Centre such facilities and courtesies as are necessary for the exercise of their functions in connection with the Centre.

11. The privileges and immunities set out in Articles 8 and 9 of this Article are accorded not for the personal benefit of the individuals themselves, but in order to safeguard the independent exercise of their functions in connection with the Centre; Consequently, the ~~Director-General of the Centre shall have~~ the right and duty to waive the immunity of any staff member of the Centre in cases where in his opinion the immunity would impede the course of justice and can be solved without prejudice to the interests of the Centre.

12. All trainees of the Centre who are not nationals of the country concerned, shall have the right of entry into, sojourn in, transit through and exit from the territory of each Contracting Party when such entry, sojourn, transit or exit is necessary for their training. These rights shall be granted promptly and free of charge.

13. The Centre shall co-operate at all times with the appropriate authorities of the Contracting Parties to facilitate the proper administration of justice, secure observance of police regulations and prevent the occurrence of any abuse in connection with the privileges, immunities and facilities mentioned in this Article.

ARTICLE IV

Officials of the United Nations and Specialised
Agencies of the United Nations

of the United Nations performing functions in connection with the Centre shall respectively enjoy appropriate privileges and immunities provided under the Convention on the Privileges and Immunities of the United Nations and the Convention on the Privileges and Immunities of the Specialised Agencies.

ARTICLE V

The Governing Council

1. The Governing Council shall be composed of the following members:

- (a) The Executive Secretary of the Economic Commission for Africa or his representative who shall be an ex-officio member and Chairman of the Governing Council;
- (b) A member appointed by each Contracting Party;
- (c) An additional member appointed by the Government of the host country; and
- (d) The Director-General of the Centre who shall be an ex-officio member and secretary to the Governing Council.

Provided however that the Director-General shall participate without vote in the deliberations of the Governing Council.

2. The Governing Council shall:

- (a) Prescribe the general principles and policies governing the operation of the Centre;
- (b) Review and approve the work programme and budget of the Centre;
- (c) Submit to each Contracting Party and to the Economic Commission for Africa an annual report on the work of the Centre;
- (d) Apportion among the Contracting Parties the costs of the operation of the Centre;
- (e) Appoint a full-time Director-General of the Centre and prescribe rules for the appointment of the staff of the Centre; and

(f) Prescribe rules and directives concerning the activities of the Centre including but not limited to the admission of trainees, the hiring of equipment and services and financial and administrative matters.

3. The Governing Council shall meet at least once a year and may hold extraordinary meetings on the request of its Chairman or of its members and shall adopt its own rules of procedure.

ARTICLE VI

THE DIRECTOR-GENERAL

The Director-General shall, in accordance with the policies and decisions of the Governing Council, have responsibility for the organization, direction and administration of the Centre. In particular, he shall:

(a) Subject to the provisions of Article VII, paragraph 3, of this Agreement, submit the work programme and budget of the Centre to the Governing Council for approval;

(b) Carry out the work programme in accordance with the decisions of the Governing Council;

(c) Submit to the Governing Council an annual report on the activities of the Centre including a financial statement on its income and expenditure;

(d) Approve applications for practical training at the Centre in accordance with the rules and directives of admission prescribed by the Governing Council;

(e) Conclude, at the request of the Governments of States members of the Economic Commission for Africa and in consultation with the Chairman of the Governing Council, arrangements for the provision by the Centre of technical services in the field of services in surveying and mapping;

(f) Hire such equipment and services as the exigencies of the Centre may require and in accordance with any rules and directives relative thereto prescribed by the Governing Council;

(g) Co-ordinate the work of the Centre with that of the Economic Commission for Africa and other organisations interested in the subject of services in surveying and mapping; and

(h) Convene, in consultation with the Chairman of the Governing Council and in accordance with the provisions of paragraph 3 of Article V of this Agreement, meetings of the Governing Council.

ARTICLE VII

Technical Advisory Committee

1. The Technical Advisory Committee (hereinafter referred to as the "Committee"), shall be composed of the Director-General of the Centre, the Directors of the substantive departments of the Centre and a representative of the Economic Commission for Africa.
2. The Committee may invite experts in the field of surveying and mapping to assist in its deliberations.
3. The Committee shall advise the Director-General on technical matters relating to the preparation and implementation of the work programme of the Centre.
4. The Committee shall meet at least once every year. Its meetings shall be convened by the Director-General of the Centre and it shall adopt its own rules of procedure.

ARTICLE VIII

Co-operation of the Governments

1. The costs of the operation of the Centre shall be borne by the Contracting Parties as apportioned by the Governing Council and also by funds from such other sources stipulated in Article XI of this Agreement.

2. (a) The Contracting Parties shall allow aircraft operated by or for the Centre to make flights into, over and out of their territories for such of the purposes of the Centre as required the use of aircraft in relation to such areas as may be agreed by the Contracting Parties and the Centre. Such aircraft shall be exempt from all charges except those for actual services rendered and from fees or taxes incidental to the landing at, parking on or taking-off any aerodrome in the territories of the State of the Contracting Parties. The crew of such aircraft shall be immune from legal process with respect to acts performed by them in their official capacity and, without prejudice to the relevant provisions of Articles III and IV of this Agreement, the aircraft shall be immune within the territory of the State of each Contracting Party from search, seizure, requisition, confiscation, expropriation and any other form of interference whether by executive, administrative, judicial or legislative action.

(b) The Centre shall in respect of its aircraft or those operated on its behalf, ensure the observance of all laws and regulations, including those relating to the maintenance and operation of aircraft, applicable in the territory of any State where such aircraft may be operated and shall maintain or cause to be maintained adequate insurance against the risk of damage to such aircraft as well as liability for personal injury, death or damage to property of third parties arising in connection with the operation of such aircraft.

3. (a) The Contracting Parties shall also allow all means of transportation by land or water operated by or for the Centre to enter into, move within, stay in, pass through and leave their territories for such of the purposes of the Centre that require the use of such means of transportation in relation to such areas as may be agreed between the Contracting Parties and the Centre. Such means of transportation shall be exempt from all charges except those for actual services rendered and from fees or taxes incidental to the entry into, movement within, stay in, passage through and exit from the territories of the States of the Contracting Parties. The

capacity and, without prejudice to the relevant provisions of Articles III and IV of this Agreement, the means of transportation by land or water owned by or operated for the Centre shall be immune within the State of each Contracting Party, from search, seizure, requisition, confiscation, expropriation and any other form of interference whether by executive, administrative, judicial or legislative action;

(b) The Centre shall in respect of its means of transportation by land or water or those operated on its behalf ensure the observance of all laws and regulations, including those relating to the maintenance and operation of means of transportation by land or water, applicable in the territory or state where such means of transportation may be operated and maintain or cause to be maintained adequate insurance against risks of damage to such means of transportation as well as liability for personal injury, death or damage to property of third parties arising in connection with the operation of such means of transportation.

4. Members of survey teams of the Centre carrying out service in surveying and mapping shall be immune from legal process with respect to acts performed by them in their official capacity and, without prejudice to the relevant provisions of Articles III and IV of this Agreement, the equipment and documents used by such teams shall be immune within the State of each Contracting Party from search, seizure, requisition, confiscation, expropriation and any other form of interference whether by executive, administrative, judicial or legislative action.

ARTICLE IX

Relations with the Economic Commission for Africa

The Centre, in the performance of its functions, shall establish and maintain close and continuous working relations with the Economic Commission for Africa.

ARTICLE X

Cooperation with Governments, the Specialised Agency
and Other Interested Institutions

The Centre shall, as appropriate, exercise its functions in co-operation with other Governments, the Specialised Agency of the United Nations and all other institutions interested in surveying and mapping.

ARTICLE XI

Financial Resources and Rules Governing
the Financial Management of the Centre

The expenditure of the Centre shall be met from contributions made by the Contracting Parties, remuneration paid for technical and advisory services provided by the Centre and such other resources as it may receive from Governments, institutions, the United Nations and its Specialised Agencies, other international organisations and non-governmental organisations. The acceptance by the Centre of such other resources shall in a case be subject to the approval of the Governing Council upon the recommendation of the Director-General of the Centre and in accordance with the relevant provisions of the rules governing the financial management of the Centre.

ARTICLE XII

Amendment

1. Any Contracting Party may propose an amendment to this Agreement.
2. The text of the proposed amendment shall be communicated to the Director-General of the Centre who shall circulate it to all Contracting Parties not less than 60 days prior to the meeting of the Governing Council.
3. The proposed amendment shall not become effective unless approved by a two-thirds majority of the members of the Governing Council at a meeting in which the proposed amendment is considered.
4. If approved in accordance with the provisions of paragraph

ARTICLE XIII

Membership

Governments of State members or associate members of the Economic Commission for Africa may become Parties to this Agreement.

ARTICLE XIV

Settlement of Disputes

If any disputes arises between two or more Contracting Parties concerning the interpretation or application of this Agreement, those Contracting Parties shall consult among themselves with a view to having the dispute settled by negotiation, inquiry, mediation, conciliation, arbitration, recourse to a special procedure provided for in an international or regional organisation, judicial settlement or any other peaceful means of their own choice.

ARTICLE XV

Signature

This Agreement shall be open for signature by the High Contracting Parties at the Ministry of Foreign Affairs of the Government of Kenya, Nairobi, between the first day of October 1974 and the thirty-first day of January 1975 and shall thereafter remain open for signature by any State which qualifies to become a Contracting Party to the Agreement.

ARTICLE XVI

Entry into Force

This Agreement shall enter into force 30 days after the date of signature by the third State. It shall enter into force for each State which subsequently signs it 30 days after the date of such signature.

ARTICLE XVII

Denunciation

1. Any Contracting Party may denounce this Agreement at any time after the expiry of 5 years from the date on which the Agreement entered into force for the Party.
2. Denunciation shall be affected by notification in writing to the Depositary Government which shall inform all other Parties to the Agreement of any such notification received and of the date of its receipt as well as the date on which such denunciation takes effect.
3. A denunciation shall take effect 6 months after receipt of the notification of denunciation by the Depositary Government or after the expiry of any longer period which may be indicated in the notification, provided that any Contracting Party availing itself of this right of denunciation shall first fulfill all its obligations under the Agreement.

ARTICLE XVIII

Depositary

The Government of the Republic of Kenya, as the Depositary of the Agreement, shall inform the Contracting Parties of:

- (a) Signature to this Agreement in accordance with Article XV;
- (b) The date on which the Agreement enters into force in accordance with Article XVI;
- (c) The date on which any amendment to this Agreement enters into force in accordance with Article XII; and
- (d) Any notification of any denunciation of the Agreement in accordance with Article XVII.

IN WITNESS WHEREOF, the undersigned, being duly authorized by their respective Governments, have signed this Agreement in English and French versions of which are equally authentic, on the dates appearing under their signature.

EXTRACTS OF ARTICLES IV AND V OF THE CONVENTION
ON THE PRIVILEGES AND IMMUNITIES OF THE UNITED
NATIONS

ARTICLE IV

The Representatives of Members

SECTION 11. Representatives of Members to the principal and subsidiary organs of the United Nations and to conferences convened by the United Nations shall, while exercising their functions and during the journey to and from the place of meeting, enjoy the following privileges and immunities:

(a) Immunity from personal arrest or detention and from seizure of their personal baggage and, in respect of words spoken or written and all acts done by them in their capacity as representatives, immunity from legal process of every kind;

(b) Inviolability for all papers and documents;

(c) The right to use codes and to receive papers or correspondence by courier or in sealed bags;

(d) exemption in respect of themselves and their spouses from immigration restrictions, alien registration or national service obligations in the State they are visiting or through which they are passing in the exercise of their functions;

(e) The same facilities in respect of currency or exchange restrictions as are accorded to representatives of foreign Governments on temporary official missions;

(f) The same facilities and immunities in respect of their personal baggage as are accorded to diplomatic envoys, and also;

(g) Such other privileges, immunities and facilities not inconsistent with the foregoing as diplomatic envoys enjoy, except that they shall have no right to claim exemption from customs duties on goods imported (otherwise than as part of their personal baggage) or from excise duties or sales taxes.

SECTION 12: In order to secure, for the representatives of Members to the principal and subsidiary organs of the United Nations and to conferences convened by the United Nations, complete freedom of speech and independence in the discharge

words spoken or written and all acts done by them in discharging their duties shall continue to be accorded, notwithstanding that the persons concerned are no longer the representatives of Members.

SECTION 13: Where the incidence of any form of taxation depends upon residence, periods during which the representative of Members to the principal and subsidiary organs of the United Nations and to conferences convened by the United Nations are present in a State for the discharge of their duties shall not be considered as periods of residence.

SECTION 14: Privileges and Immunities are accorded to the representatives of Members not for the personal benefit of the individuals themselves, but in order to safeguard the independent exercise of their functions in connection with the United Nations. Consequently, a Member not only has the right but is under a duty to waive the immunity of its representative in any case where in the opinion of the Member the immunity would impede the course of justice, and it can be waived without prejudice to the purpose for which the immunity is accorded.

SECTION 15: The provisions of Sections 11, 12 and 13 are not applicable as between a representative and the authorities of the State of which he is a national or of which he is or has been the representative.

SECTION 16: In this Article the expression "representatives" shall be deemed to include all delegates, deputy delegates, advisers, technical experts and secretaries of delegations.

ARTICLE V

Officials

SECTION 17: The Secretary-General will specify the categories of officials to which the provisions of this article and Article VII shall apply. He shall submit these categories to

communicated to the Governments of all Members. The names of the officials included in these categories shall from time to time be made known to the Governments of Members.

SECTION 18: Officials of the United Nations shall:

(a) be immune from legal process in respect of words spoken or written and all acts performed by them in their official capacity;

(b) be exempt from taxation on the salaries and emoluments paid to them by the United Nations;

(c) be immune from national service obligations;

(d) be immune, together with their spouses and relatives dependent on them, from immigration restrictions and alien registration;

(e) be accorded the same privileges in respect of exchange facilities as are accorded to the officials of comparable ranks forming part of diplomatic missions to the government concerned;

(f) be given, together with their spouses and relatives dependent on them, the same repatriation facilities in time of international crisis as diplomatic envoys;

(g) have the right to import free of duty their furniture and effects at the time of first taking up their post in the country in question.

SECTION 19: In addition to the immunities and privileges specified in Section 18, the Secretary-General and all Assistant Secretaries-General shall be accorded in respect of themselves, their spouses and minor children, the privileges, immunities, exemptions and facilities accorded to diplomatic envoys, in accordance with international law.

SECTION 20: Privileges and Immunities are granted to officials in the interests of the United Nations and not for the personal benefit of the individuals themselves. The Secretary-General shall have the right and the duty to waive immunity of any official in any case where, in his opinion, the immunity would impede the course of justice and can be waived without prejudice to the interests of the United Nations. In the case

of the Secretary-General, the Security Council shall have the right to waive immunity.

SECTION 21: The United Nations shall co-operate at all times with the appropriate authorities of Members to facilitate the proper administration of justice, secure the observance of police regulations, and prevent the occurrence of any abuse in connection with the privileges, immunities and facilities mentioned in this Article.

AGREEMENT BETWEEN THE REGIONAL CENTRE
FOR SERVICES IN SURVEYING AND MAPPING AND THE
REPUBLIC OF KENYA REGARDING THE
HEADQUARTERS OF THE CENTRE

AGREEMENT BETWEEN THE REGIONAL CENTRE
FOR SERVICES IN SURVEYING AND MAPPING
AND THE REPUBLIC OF KENYA REGARDING
THE HEADQUARTERS OF THE CENTRE

THE REGIONAL CENTRE FOR SERVICES IN SURVEYING
AND MAPPING AND THE REPUBLIC OF KENYA,

Considering that it is desirable to conclude an agreement,
complementary to the Agreement concerning the Establishment of
a Regional Centre for Services in Surveying and Mapping, to
regulate questions arising as a result of the establishment of
the Centre at Nairobi in the Republic of Kenya,

Have agreed as follows:

ARTICLE I
DEFINITIONS

In this Agreement,

- (a) The expression "the Centre" means the Regional
Centre for Services in Surveying and Mapping;
- (b) The expression "the Government" means the Govern-
ment of the Republic of Kenya;
- (c) The expression "Director General" means the Director
General of the Centre or any officer designated to act on his
behalf;
- (d) The expression "appropriate authorities" means such
national, municipal or other authorities in Kenya as may be
appropriate in the context and in accordance with the laws and
customs applicable in the Republic of Kenya (hereinafter referred
to as "Kenya");

(e) The expression "headquarters seat" means:

- (i) the headquarters area with building or buildings upon it, as may from time to time be defined in the supplemental agreements referred to in paragraph 2 of Article II of this Agreement; and
- (ii) any other land or building which may from time to time be included temporarily or permanently there in accordance with this Agreement or by supplemental agreement with the Government;

(f) The expression "Participating Government" means a Government which is a party to the Agreement concerning the Establishment of the Regional Centre for Services in Surveying and Mapping;

(g) The expression "officials of the Centre" means the Director-General and all members of the Staff of the Centre except those who are locally recruited and assigned to hourly rates.

ARTICLE II

THE HEADQUARTERS SEAT

1. (a) The permanent headquarters of the Centre shall be in the headquarters seat and shall not be removed therefrom unless the Centre should so decide. Any transfer of the headquarters temporarily to another place shall not constitute a removal of the permanent headquarters unless there is an express decision by the Centre to that effect.

(b) Any building in or outside of Nairobi which may be used with the concurrence of the Government for any of the purposes of the Centre shall be temporarily included in the headquarters seat.

(c) The appropriate Kenya authorities shall take whatever action may be necessary to ensure that the Centre shall not be dispossessed of all or any part of the headquarters seat without the express consent of the Centre.

2. The Government grants to the Centre and the Centre accepts from the Government the permanent use and occupation of a headquarters seat as may from time to time be defined in supplemental agreements to be concluded between the Centre and the Government.

3. The Centre shall for official purposes and subject to the provisions of Article 45 of the International Telecommunications Convention relating to harmful interference, have the authority with the approval of the Government to install and operate a radio sending and receiving station or stations to exchange traffic with aircraft which are being operated for the purposes of the Centre and field teams.

4. The Centre may establish and operate research, documentation and other technical facilities relating to services rendered by the Centre. These facilities shall be subject to appropriate safeguards which, in the case of facilities which might create hazards to health or safety or interfere with property, shall be agreed with the appropriate Kenyan authorities.

5. The facilities provided for in paragraphs 3 and 4 of this Article may to the extent necessary for efficient operation, be established and operated outside the headquarters area. The appropriate Kenyan authorities shall at the request of the Centre, make arrangements on such terms and in such manner as may be agreed upon by supplemental agreement for the acquisition or use by the Centre of appropriate premises for such purposes and for the inclusion of such premises in the headquarters seat.

ARTICLE III

CONTROL AND PROTECTION OF HEADQUARTERS

1. The headquarters shall be inviolable and shall be under the control and authority of the Centre as provided in this Agreement.
2. (a) Officers or officials of Kenya whether administrative, judicial, military or police, shall not enter the headquarters to perform any official duties therein except with the consent of and under conditions agreed by the Director-General.
(b) Without prejudice to the provisions of the Agreement Concerning the Establishment of the Regional Centre for Services in Surveying and Mapping or of this Agreement, the Centre shall prevent the headquarters from becoming a refuge for persons who are avoiding arrest under any law of Kenya or who are required by the Government for extradition to another country or who are endeavouring to elude service of legal process.
3. (a) The appropriate Kenya authorities shall exercise due diligence to ensure that the tranquility of the headquarters is not disturbed by the unauthorized entry of groups of persons

from outside or by disturbance in its immediate vicinity, and shall cause to be provided on the boundaries of the headquarters such police protection as is required for these purposes.

(b) If so requested by the Director-General the appropriate Kenya authorities shall provide a sufficient number of police for the preservation of law and order in the headquarters, and for the removal therefrom of persons as requested under the authority of the Director-General.

ARTICLE IV

STATUS OF THE CENTRE

1. The Centre, as an inter-governmental body established under the aegis of the Economic Commission for Africa, shall have in Kenya, the capacity to contract, to acquire and dispose of immovable or movable property and to institute legal proceedings.

2. The Centre, its property and assets, shall enjoy immunity from every form of legal process, except insofar as in any particular case it has expressly waived its immunity:

Provided however that no waiver of immunity shall extend to any measure of execution.

3. The property and assets of the Centre shall be immune from search, requisition, confiscation, expropriation and any other form of interference, whether by executive, administrative, judicial or legislative action.

4. The archives of the Centre, and in general all documents belonging to it or held by it, wherever located, shall be inviolable.

5. The Centre, its property, assets and income shall be exempt from all forms of direct taxation, and subject to such customs laws for the time being in force, from customs duties and prohibitions and restrictions on imports and exports in respect of articles imported or exported by the Centre for its official use. Provided that nothing herein shall extend such exemption to the owner or lessor of any property rented by the Centre or exempt the Centre from the payment of taxes which represent payment for specific services rendered or for public utility services.

6. In any transactions to which the Centre is a party the Centre shall be exempt from all stamp duty and other documentary taxes.

ARTICLE V

COMMUNICATION AND TRANSPORT

1. The Centre shall enjoy for its official communications treatment not less favourable than that accorded by the Government to another government or to any other inter-governmental organization, including foreign diplomatic missions in Kenya.

2. No censorship shall be applied to the official correspondence or other communications of the Centre. Such immunity shall extend without limitation by reason of this enumeration, to publications, documents, maps, still and moving pictures, films, sound recordings and other scientific recordings for the work of the Centre.

3. The Centre shall have the right to use codes and to dispatch and receive official correspondence and without limitation by reason of this enumeration, publications, documents, maps, still and moving pictures, films, sound recordings and other scientific recordings either by courier or in sealed bags which shall have the same immunities and privileges as diplomatic couriers and bags.

ARTICLE VI

ACCESS AND RESIDENCE

1. The competent Kenya authorities shall grant to the following persons the right of entry, sojourn in, transit through and exit is necessary for the proper performance of their functions:

- (i) members of the Governing Council of the Centre and their spouses;
- (ii) officials of the Centre and their families;
- (iii) persons other than officials of the Centre performing missions for the Centre and their spouses;
- (iv) other persons invited to the headquarters on official business and whose names shall be communicated to the Government by the Director-General;
- (v) participants in seminars and other meetings organized by the Centre; and
- (vi) trainees who are not nationals of Kenya.

They shall be granted facilities for speedy travel and visas where required, shall be granted promptly and free of charge.

2. This Article shall not apply to general interruption of transport and shall not impair the effectiveness of general applicable law and regulations as to the operation of means of transportation.

3. This Article shall not imply exemption from the obligation to produce reasonable evidence to establish that persons claiming the rights granted under this Article are included in the categories specified in paragraph 1 of this Article nor from the reasonable application of quarantine and health regulations.

ARTICLE VII

MEMBERS OF GOVERNING COUNCIL

Those members of the Governing Council of the Centre who are representatives of the respective Participating Governments of the Centre shall be entitled in the territory of Kenya, while exercising their functions and during their journey to and from the headquarters to the same privileges and immunities as are provided for mutatis mutandis by Article IV of the Convention of Privileges and Immunities of the United Nations.

ARTICLE VIII

OFFICIALS OF THE CENTRE

1. Officials of the Centre who shall have been designated by the Director-General for this purpose, other than any person who

may have any dealings in Kenya or elsewhere with the Centre as the representative of the Government of Kenya or as a member of staff of such representative, or persons resident in Kenya except solely for the purpose of the Centre shall while in the territory of Kenya enjoy the following privileges and immunities:

- (a) Immunity from legal process in respect of words spoken or written and all acts performed by them in and during their official capacity, which immunity shall continue notwithstanding that the persons concerned may have ceased to be officials of the centre;
- (b) Exemption from taxation on the salaries and emoluments paid to them by the Centre;
- (c) Immunity from national service obligations, provided that, with respect to Kenya nationals, such exemptions shall be confined to officials whose names have by reason of their duties, been placed on a list compiled by the Director-General and approved by the Government;
- (d) The same privilege in respect of exchange facilities as are accorded to officials of comparable ranks forming part of diplomatic missions to the Government;
- (e) The same repatriation facilities in time of international crisis together with members of their families and their personal employees as diplomatic envoys;

- (f) Exemption of officials of the Centre, other than Kenyan nationals and permanent foreign residents of Kenya, aforesaid from any form of direct taxation on income derived from sources outside Kenya, except Tanzania and Uganda;
- (g) Freedom to acquire and maintain within Kenya, out of funds derived from outside Kenya, foreign securities and other property, and upon the termination of employment, with the Centre, the right to take out of Kenya, in convertible currency, through authorised channels, the proceeds of sale of such property;
- (h) The right to import free of duty and other levies, prohibitions, and restrictions on imports, their furniture and effects within three months or such later period as the government may in writing agree, after taking up their post in Kenya, and in relation to the importation transfer and replacement of automobiles, the same regulations shall apply to officials other than Kenyan nationals and permanent foreign residents of Kenya, as are applied to resident members of diplomatic missions of comparable rank.

2. Officials of the United Nations or Specialized Agencies of the United Nations performing functions in connexion with the Centre shall respectively enjoy the privileges and immunities provided for under the Convention on Privileges and Immunities of the United Nations and the Convention on Privileges and Immunities of the Specialized Agencies.

3. All officials of the Centre shall be provided with a special identity card certifying that they are officials of the Centre enjoying the privileges and immunities specified in this Agreement.

4. The privileges and immunities accorded by paragraph 1 of this Article are granted in the interest of the Centre and not for the personal benefit of the individuals themselves. The Director-General of the Centre shall have the right and duty to waive the immunity of any staff member of the Centre who is not an official of the United Nations or of a Specialized Agency in cases where, in his opinion, such immunity would impede the course of justice and can be waived without prejudice to the interest of the Centre.

5. The Centre shall co-operate at all times with the appropriate authorities of Kenya to facilitate the proper administration of justice, secure the observance of police regulations and prevent the occurrence of any abuse in connexion with the privileges and immunities and facilities mentioned in this Article.

ARTICLE IX

PUBLIC SERVICES AND UTILITIES

The appropriate Kenyan authorities will exercise to the extent requested by the Director-General the powers which they possess with respect to the supply of public services to ensure that the headquarters shall be supplied on equitable terms with the necessary public services including electricity, water, gas,

post, telephone, telegraph, transportation, drainage, collection of refuse, fire protection. In case of any interruption or threatened interruption of such services, the appropriate Kenyan authorities will consider the needs of the Centre as being of equal importance with the similar needs of essential agencies of the Government, and will take steps accordingly to ensure that the work of the Centre is not prejudiced.

ARTICLE X

CO-OPERATION OF THE GOVERNMENT

1. The Government shall arrange for its technical departments, universities and other higher educational institutions to extend their full co-operation to the Centre including the organization of field studies, demonstration sessions, special lectures and the supply of surveying and mapping data.
2. The Government shall allow aircraft operated by or for the Centre to make flights into, over and out of its territory for such of the purposes of the Centre that require the use of aircraft in relation to such areas as may be agreed by the Government and the Centre. Such aircraft shall be exempt from all charges except those for actual services rendered, and from fees or taxes incidental to the landing at, parking on or taking off from any aerodrome in Kenya. The crew of such aircraft, not being independent contractors, shall be immune from legal process with respect to acts performed by them in their official capacity, and without prejudice to the relevant provisions of Article IV of this Agreement, the aircraft shall be immune within Kenya from search, seizure, requisition,

confiscation, appropriation and any other form of interference whether by executive, administrative or judicial or legislative action:

Provided that the Centre shall in respect of its aircraft or those operated on its behalf, ensure the observance of all laws and regulations including those relating to the maintenance and operation of aircraft, applicable in Kenya and shall maintain or cause to be maintained adequate insurance against the risks of damage to such aircraft as well as liability for personal injury, death or damage to property of third parties arising in connection with the operation of such aircraft.

3. The Government shall also allow all means of transportation by land or water operated by or for the Centre to enter into, move within, pass through, stay in and leave its territory for such of the purposes of the Centre that require the use of such means of transportation in relation to such areas as may be agreed by the Government and the Centre. Such means of transportation shall be exempt from all charges except those for actual services rendered, and from fees or taxes incidental to the entry into, movement within, stay in, passage through and exit from Kenya. The crew of such means of transportation shall be immune from legal process with respect to acts performed by them in their official capacity and without prejudice to the relevant provisions of Article IV of this Agreement, the means of transportation by land or water owned by or operated for the Centre shall be immune within Kenya from search, seizure, requisition, confiscation, expropriation and any other form of interference whether by executive, administrative, judicial or legislative action:

Provided that the Centre shall in respect of its means of transportation by land or water or those operated on its behalf, ensure the observance of all laws and regulations including those relating to the maintenance and operation of means of transportation by land or water, applicable in Kenya and shall maintain or cause to be maintained adequate insurance against the risks of damage to such means of transportation as well as liability for personal injury, death or damage to property of third parties arising in connexion with the operation of such means of transportation.

ARTICLE XI

INTERPRETATION AND APPLICATION

1. The provision of the Agreement concerning the Establishment of the Regional Centre for Services in Surveying and Mapping and of this Agreement shall, where they relate to the same subject matter, be treated wherever possible as complementary to each other so that the provisions of both shall be applicable and neither shall narrow the effect of the other:

Provided however that in any case of absolute conflict, the provisions of this Agreement shall prevail.

2. The Government and the Centre may enter into such supplemental agreements as may be necessary to fulfil the purposes of this Agreement and wherever this Agreement imposes obligations on the appropriate Kenyan authorities

or the Centre, the ultimate responsibility for the fulfilment of such obligations shall rest with the Government or the Centre as the case may be.

3. This Agreement shall be interpreted in the light of its primary purpose of enabling the Centre fully and efficiently to discharge its responsibilities and to fulfil its objectives.

ARTICLE XII

MODIFICATION OF AGREEMENT

Any modification to this Agreement shall be by mutual consent of the parties hereto.

ARTICLE XIII

SETTLEMENT OF DISPUTES

Any dispute between the Centre and the Government concerning the interpretation or application of this Agreement or of any supplemental agreement, which is not settled by negotiation or other agreed mode of settlement shall be referred for final decision to a tribunal of three arbitrators, one to be named by the Director-General of the Centre, one to be named by the Government, and the third to be chosen by the two, or if they should fail to agree upon a third, then by the Administrative Secretary-General of the Organization of African Unity.

ARTICLE XIV

TERMINATION OF THE AGREEMENT

This Agreement and any supplemental agreement entered into between the Government and the Centre within the scope of its terms of reference, shall cease to be in force two years after either of the parties hereto shall have given notice in writing to the other of its decision to terminate the Agreement, except as regards those provisions which may apply to the normal cessation of the activities of the Centre in Kenya and the disposal of its property.

ARTICLE XV

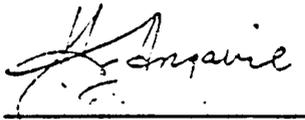
ENTRY INTO FORCE

This Agreement shall come into force upon signature.

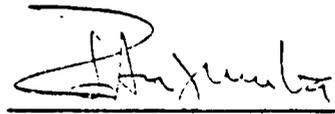
Done at Nairobi in two originals in the English language, on the 17th day of October One Thousand Nine Hundred and Seventy-Five.

For the Government of
the Republic of Kenya:

For the Regional Centre for
Services in Surveying and
Mapping:



HON. J. H. ANGAINE
(MINISTER FOR LANDS AND
SETTLEMENT)



P. P. ANYUMBA
(DIRECTOR)

THE PRIVILEGES AND IMMUNITIES ACT

(Cap. 179)

IN EXERCISE of the powers conferred by section 9 of the Privileges and Immunities Act, the Minister for Foreign Affairs hereby makes the following Order:—

THE PRIVILEGES AND IMMUNITIES (REGIONAL CENTRE FOR SERVICES IN SURVEYING AND MAPPING) ORDER, 1975

1. This Order may be cited as the Privileges and Immunities (Regional Centre for Services in Surveying and Mapping) Order, 1975.

2. In this Order—

"Centre" means the Regional Centre for Services in Surveying and Mapping established by an Agreement made at Nairobi between the governments of certain sovereign states in eastern and central Africa, including the Government of Kenya, which came into force on 18th April 1975.

"senior officer of the Centre" means any officer of the Centre holding the post of deputy assistant head of a technical department or any post above the post of deputy assistant head of a technical department.

3. The Centre is hereby declared to be an organization of which the Government of Kenya and other foreign governments are members.

4. The Centre shall have—

- (a) the legal capacities of a body corporate; and
- (b) the privileges and immunities specified in Part I of the Fourth Schedule to the Act.

5. The exemption from rates and taxes made under paragraph 3 of Part I of the Fourth Schedule to the Act shall, notwithstanding paragraph 4 (b), be like, and be limited to, the exemption made under Articles 23 and 28 of the First Schedule to the Act.

6. Any persons who are representatives (whether of governments or not) on any organ of the Centre or are members of any committee of the Centre or of an organ thereof, other than as a representative of the Government of Kenya or as a member of the staff of such representative, and who are specified in a notice in the Gazette pursuant to section 9 (4) (a) of the Act, shall have the Privileges and immunities specified in Part II of the Fourth Schedule to the Act.

7. Any senior officer of the Centre who is not—

- (a) a resident of Kenya except solely for the purpose of rendering services to the Centre; or
- (b) having dealings with the Centre as the representative of the Government of Kenya or as a member of the staff of such representative, shall have the privileges and immunities specified in Part III of the Fourth Schedule to the Act.

8. The exemption from tax or duty on importation made under paragraph 7 of Part III of the Fourth Schedule to the Act shall, notwithstanding paragraph 7, be like, and be limited to, the exemption made under paragraph 5 (2) of Part A of the Third Schedule to the Customs Tariff Act.

Made this 22nd day of November, 1975.

MUNYUA WAIYAKI,
Minister for Foreign Affairs.

BEST AVAILABLE DOCUMENT

AGREEMENT CONCERNING THE ESTABLISHMENT OF
A REGIONAL REMOTE SENSING USER ASSISTANCE
FACILITY AT THE HEADQUARTERS OF REGIONAL
CENTRE FOR SERVICES IN SURVEYING & MAPPING
NAIROBI - KENYA

AGREEMENT CONCERNING THE ESTABLISHMENT OF A REGIONAL
REMOTE SENSING USER FACILITY IN NAIROBI

REPUBLIC OF KENYA

THIS AGREEMENT is made and entered into on the 2nd day of March, 1977, between the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT (hereinafter called "A.I.D."), of the one part, and the Regional Centre for Services in Surveying and Mapping (hereinafter called the "Centre") located in Nairobi, Kenya and established by an agreement dated April 18, 1975 (hereinafter called "the said Agreement").

WITNESSETH THAT:

WHEREAS, it is the purpose of the Centre to provide technical services in surveying and mapping to the Contracting Parties to the said Agreement of the East and Central Africa geographic sub-region within UNECA (hereinafter called "the Contracting Parties").

WHEREAS, A.I.D. and the Centre (hereinafter called the "Parties") recognize the necessity of accelerating the development of the extensive natural resources of Africa in order to stimulate economic development and progress;

WHEREAS, the Parties also recognize the importance of remote sensing as a tool in improving resource exploration, assessment, and management; and

WHEREAS, the Parties recognize the mutual benefits to be derived by the establishment of a remote sensing facility to augment both the technical services provided by the Centre and by A.I.D. to the Contracting Parties of Africa.

NOW THEREFORE, the Parties to this Agreement hereby agree as follows:

I. Establishment of the Facility

A Regional Remote Sensing User Assistance Facility (hereinafter called the "Facility") is established by A.I.D. and will be co-located with the Centre at the latter's offices in Nairobi. The purpose of this Facility will be to:

- (a) assist A.I.D. and the Contracting Parties to improve resource exploration, assessment and management procedures and capabilities in these countries through the use of remote sensing technology;
- (b) improve the Centre's capability for utilizing and providing technical assistance in remote sensing;
- (c) train Centre personnel and personnel from the Contracting Parties in the use of remote sensing technology.

II. Activities to be Undertaken by the Facility

To achieve the purposes stated above, the Facility will undertake, inter alia, the following activities:

- (a) Provide training course, seminars and demonstrations at periodic intervals to stimulate utilization of remote sensing technology.
- (b) Provide photo processing and image interpretation for the Centre and the Contracting Parties.
- (c) Maintain photo and reference libraries and ensure that important publications and announcements are distributed to the Centre.
- (d) Make frequent visits to the Contracting Parties to assist in the development of remote sensing programs and to provide technical assistance as needed. Initially these visits will be concerned with the identification of local contacts and counterparts in each country and the development of linkages between users and sources of data. Later, the visiting staff will identify projects to which remote sensing could make a useful contribution and provide the necessary assistance in effecting utilization.

- (e) Keep abreast of new developments in the U.S. space program and inform the Centre of new opportunities for using space technology. In particular, to inform the Centre and the Contracting Parties of opportunities for participating in Landsat experiments and assist in the preparation of proposals where necessary.
- (f) Establish liaison with the international agencies and other donors which are active in remote sensing in order to best avoid gaps and duplication in donor assistance efforts.
- (g) To assist the Centre in establishing linkages and obtaining data directly from Landsat ground stations.

III. Site of the Facility

The headquarters of the Facility will be co-located at the premises of the Centre in Nairobi, Kenya. In order to accommodate the Facility at its premises the Centre will make all appropriate arrangements to provide the requisite office space, maintenance and other facilities to enable the Facility to operate in a proper and efficient manner.

IV. 3 us and Relationship between
a Facility and the Centre

- (a) To achieve the purpose and to implement the activities which are set forth herein, the work of the Facility will be undertaken in close conjunction with that of the Centre so that, to the maximum extent practicable, the work of each will be supportive of the other and to this end it is agreed that there will be continuing consultation between the Director-General of the Centre and the A.I.D. personnel at the time responsible for the operation of the Facility.
- (b) The Facility, its personnel, and its equipment will enjoy such status, privileges, immunities and exemptions as are accorded to the Centre under its Agreement with the Government of Kenya dated October 3, 1975, and such other agreements as may be entered into between the Government of Kenya and the Centre. Such privileges and immunities include, inter alia, tax exempt status on personal income, exemption from customs duties on the importation of Facility equipment and the personal household effects (including motor vehicles) of its personnel, and exemption

from the payment of sales tax for
commodities procured for the Facility.

V. Responsibilities of the Centre

The Centre will have the following responsibilities towards the Facility for the achievement of the purposes and implementation of the activities stated herein:

- (a) Provide space, utilities, and custodial services for requisite offices, laboratory, library and files. It is anticipated that offices for up to four professional staff will be required along with adequate office space for two short-term consultants and support staff (secretaries, librarian, technicians) as required;
- (b) Assist in arranging for duty-free entry of equipment and supplies for the Facility into Kenya and other countries of the Contracting Parties.
- (c) Provide access to and use of the Centre's photo laboratory by remote sensing personnel;
- (d) Provide access to the Centre's conference facilities and other support activities including, in the event possible, data processing facilities, which may be required by the Facility;

- (e) Provide adequate insurance for equipment and furniture located in the Facility;
- (f) Procure for the Facility, with the prior written consent of the responsible Facility personnel, such equipment and supplies as may be required by the Facility.
- (g) To undertake projects without the participation of A.I.D. at the sole responsibility of the Centre.

VI. Responsibilities of A.I.D.

A.I.D. will have the following responsibilities towards the Centre for the achievement of the purposes and implementation of the activities stated herein:

- (a) Provide the services of and pay all ~ salaries, housing allowances, travel, insurance and any other related expenses for up to four professional staff, short term consultants and support staff attached to the Facility;
- (b) Reimburse the Centre for all authorized procurement done on behalf of the Facility required under para V(f) and, when applicable, the Facility's proportionate share of data processing costs;

- (c) Reimburse the Centre for a proportionate share of the cost of utilities, custodial services and insurance for equipment and furniture.
- (d) Provide remote sensing equipment, reference material, film library, Landsat imagery browse file, and such other equipment, as the Parties deem necessary, for the Centre's photo laboratory for enlarging and printing Landsat imagery (A list of this equipment, as presently contemplated by the Parties, appears as Annex A to this Agreement. This list may be altered without amendment to the Agreement).
- (e) Negotiate the procurement of equipment and supplies for the Facility in the United States and arrange for and finance their transportation to the site of the Centre;
- (f) Maintain all equipment provided and update browse file and film library as new imagery becomes available;
- (g) Leave, for use by the Centre upon the termination of this Agreement, all photo lab equipment, field equipment (including vehicles and cameras), office furniture,

and library reference materials.

Disposition of the remote sensing equipment will be determined at the date of termination of this Agreement.

- (h) Provide services, to the maximum extent practicable, to the Centre, as needed, to accomplish the objectives of this Agreement;
- (i) Award, at its discretion, A.I.D. grants for the utilization of remote sensing;
- (j) Provide the Facility with furniture, office equipment, stationery and other such supplies or reimburse the Centre for the procurement of these items;
- (k) To undertake projects to other African countries without the participation of the Centre at the sole responsibility of the A.I.D. provided such projects do not prejudice or adversely affect the interest of the Centre. The Centre will allow A.I.D. the use of its facilities for such projects.
- (l) Insure local staff against personal accident occurring during the course of their official duties.

VII. Termination

The Parties presently contemplate that this Agreement will remain valid and in force for a period of four years from the date the Facility is established. Such date will be confirmed by mutual agreement of the Parties. However, this Agreement may be terminated by either Party upon giving the other Party Ninety (90) days written notice of intention to terminate it.

VIII. Disputes

If any disputes arise between the Parties hereto concerning the interpretation or application of this Agreement, the Parties shall consult between themselves with a view to having the dispute settled by negotiation, arbitration, recourse to a special procedure provided for in an international or regional organization or any other peaceful means of their own choice.

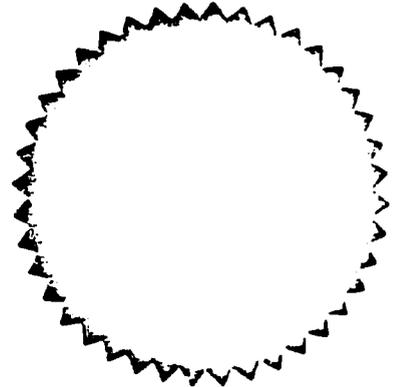
TO WITNESS WHEREOF, the Parties hereto, each acting through its respective duly authorized representative, have caused this Agreement to be signed and/or caused its common seal to be applied and delivered as of the day and year first written above.

REGIONAL CENTRE FOR SERVICES
IN SURVEYING AND MAPPING

BY : *[Signature]*

Title: DIRECTOR-GENERAL

Date : 2nd March, 1977

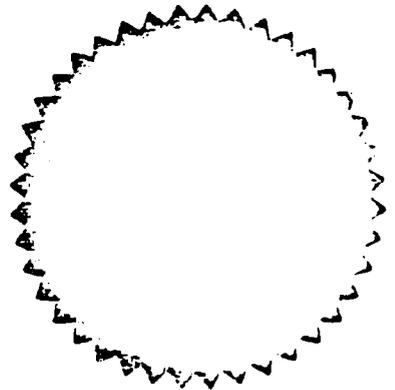


AGENCY FOR INTERNATIONAL DEVELOPMENT

BY : *[Signature]*

Title: *[Signature]*

Date : 2nd March, 1977



ANNEX H

AID IMPLEMENTATION LETTERS #'s 1, 2 + 3

(On file with AFR/RA)

ANNEX I

COMMODITY AND EQUIPMENT LIST

The equipping of the image analysis and photographic laboratories is intended to follow the specifications of the consultant's report prepared for AID by Dr. George Rabchevsky. The equipment lists attached are taken from this report entitled Design Requirements and Equipment Specifications for Regional Remote Sensing User Assistance Facilities prepared by Dr. George Rabchevsky under U.S. AID contract AID/afr-C-1142(OP-6808) (see Annex N). As the project develops, items may be added to accommodate unanticipated needs or to take advantage of newly developed items which were not available at the time the original lists were prepared.

Many of the items on the attached lists have been obtained through excess property channels. These include photo lab equipment from USAID/Afghanistan and from the U.S. Coast Guard. Remote sensing analysis equipment has been obtained from AID/W. Since not all of the equipment has arrived, it is not yet possible to make an overall estimate of the savings, or finalize the new procurement lists. The savings are known to be substantial.

Table 1 LIST OF EQUIPMENT

Reference Library

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/Vendor
Microfilm Viewer	1	Cartridge type, with search terminal (Recordak)	6,500	6,500	Kodak
Microfilm Recorder	1	Counter for Recordak and position finder	1,500	1,500	Kodak
Film Cartridges (empty)	1000	For 16mm film, Landsat	1.50	1,500	Kodak
Magazine/Cartridge Station	1	Manual loading of cartridges w/Landsat film	100	100	Kodak, Recordak
Cartridge Racks		Stacking type, sectional trays 16mm, 35mm, Approx. 5000 capacity for 16mm cartridges		250	Fuller & D'Albert
Microfiche and Film Reader/Viewer	1	3M Model 400, for microfiche and roll film, incl. microfiche, 35mm, 16mm and 70mm adapters		5,000	3M
Slide Slipcases		Variable, 35mm to 2" x 2"; 8" x 11" plastic sheets		100	Industrial Photo
Microfilm Splicer	1	16mm (Dupage)	150	150	Fuller & D'Albert
Light Table	1	Table model, 18" x 20" glass area, tilt top	167	167	NUARC
Film Viewer	1	Illuminated, up to 9 1/2" wide for rolls	260	260	K+E
Light Table	1	Model GFL-918X for roll film	1,045	1,045	Richards
Stereoscope	1	Mirror, 1.3X and 3X	575	575	Forestry Suppliers, Inc.
Tapewriter	1	For metal & vinyl tapes	85	85	Forestry Suppliers, Inc.
Tapes	10 rolls	Metal, with adhesive	2.50	25	
Tapes	10 rolls	Vinyl, with adhesive, 5 colors	2.00	20	

Table 1 LIST OF EQUIPMENT Cont'd

Reference Library

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
Magnifier	4	Clear plastic base, 4X (Agfa)	2.50	10	Industrial Photo
Calculator	1	Desk, basic model	200	200	any
Typewriter	1	Electric	300	300	any
Map Cabinet	2	Metal, see Appendix E	300	600	any
Map Tube Racks	2	36 Tube capacity, 33 5/8" W x 15 3/4" D x 32" L	64	128	Forestry Suppliers, Inc.
Furniture		To be selected		1,000	any
			Total	19,515	

Table 2 LIST OF FURNITURE

Imagery File

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
File Cabinet	7	Legal-size, metal, for storage of cut negs/photos	30	560	any
Shelves	10	Metal, for storage of film cans, etc.	60	600	any
Worktable	1		60	60	any
Storage Cabinet	2	Stand-up, for supplies	90	180	any
File Box	10	Metal, 4" x 6", for Landsat 70mm cut film chips, etc.	20	200	any
Miscellaneous		Chairs, shelves, pinboards, etc		400	any
			Total	2,000	

Table 3 LIST OF EQUIPMENT
Photographic Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/Vendor
Black & White Processor	1	Film and paper, variable size	14,000	14,000	Agfa
Color Processor		Film and paper, up to 40" wide; Model 130LA	15,450	15,450	Colenta
Accessories				2,500	
Enlarger	1	Durst V-184/CLS-301, 8" x 10", complete	8,900	8,900	EPOI
Enlarger	1	Durst, 5" x 7", complete	3,000	3,000	EPOI
Silver Recovery	1	1 troy oz/hr	850	850	Rotex, Paco
Water Chiller	1	63° - 73°F Range	686	686	Paco
Water Saver	1	Automatic	698	698	Paco
Control Panel	1	Temperature, flow, etc.	2,565	2,565	Paco
Copy Camera	1	Model 425, 20" rail	22,000	22,000	Agfa
Contact Printer	1	Vacuum frame, 43" x 52", flip top, xenon light source	4,405	4,405	NUARC
Blue/White Printer	1	Console type, Model 350	1,775	1,775	Blu-Ray
Camera	1	35mm, for slides, etc.; accessory lenses	500	500	any
Slide Mounter	1	35mm format	495	495	Fuller & D'Albert
Copy Stand	1	Height 45"; baseboard 20" x 27"; w/lamps	160	160	Fuller & D'Albert
Color Analyzer	1	Speedmaster 500	500	500	Fuller & D'Albert
Densitometer	1	Macbeth	2,425	2,425	Fuller & D'Albert

Table 3 LIST OF EQUIPMENT Cont'd

Photographic Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
Exposure Meter	1	Reflected light	52	52	Fuller & D'Albert
Cutter	2	Paper & Film, rotary blade, 24"	130	260	Fuller & D'Albert
Cutter	2	Paper, blade, 12"	30	60	Fuller & D'Albert
Flash Unit	1	Electronic, with camera bracket (Braun 2000 Vario-Computer)	130	130	Fuller & D'Albert
Light Table	2	Steel, 42" x 62" glass area, adjustable legs	626	1,252	NUARC
Light Table	3	Table model, 18" x 20" glass area, tilt top	167	501	NUARC
Register Puncher	1	For film & prints up to 16" x 20"	240	240	Industrial Photo
Film Viewer (Light Box)	2	Illuminated, up to 9 1/2" wide for rolls	260	520	K+E
Film Dryer	1	Jet air cabinet	950	950	Industrial Photo
Print Dryer	1	Table-top, 22" drum	565	565	Industrial Photo
Print Dryer	1	Impingement RC, four racks, 11" x 17"	120	120	Industrial Photo
Mounting Press	1	Electric, 52"	525	525	Industrial Photo
Sinks	1	With temperature control, 3 ea 20" x 24" trays	1,700	1,700	Industrial Photo (NUARC)
Sink	1	Processing	1,000	1,000	Fuller & D'Albert

Table 3 LIST OF EQUIPMENT Cont'd

Photographic Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/Vendor
Utility Worktable	3	28" x 40", metal	418	1,065	NUARC
Film Storage Cabinet	3	28" x 40", metal	418	1,254	NUARC
Refrigerator	1	Regular, large	400	400	any
Tapewriter	1	For metal & vinyl tape strips	85	85	Forestry Supplies, Inc.
Tapes	10 rolls	Metal, with adhesive	2.50	25	
Tapes	10 rolls	Vinyl, with adhesive, 5 colors	2	20	
Magnifier	2	Achromatic, 5X (Kodak)	29	58	Industrial Photo
Magnifier	5	BX, clear plastic base (Agfa)	2.50	12	Industrial Photo
Exposure Meter	1	Gossen Luna Pro System, with microscope attachment	125	125	Industrial Photo
Tripod	1	Metal, telescopic	79	79	Industrial Photo
Dust & Static Removal Unit	1	Kodak, 10"	430	320	Industrial Photo
Thermometers	5	Kodak, Dial face	55	275	Industrial Photo
Timer	3	For Darkroom	55	165	Industrial Photo
Timer	3	Safelight & enlarger automatic control	44	132	Industrial Photo
Miscellaneous parts, start-up supplies, etc.		See next page for listing		3,000	any

Table 4 LIST OF EQUIPMENT

Imagery Interpretation Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/Vendor
Zoom Transfer Scope	1	0.6X-7X stage magnification	8,300	8,300	Bausch & Lomb
Reflective Projector	1	Reduction to 1/4 size and enlargement up to 4X; with film transport and curtain enclosure	7,220	7,220	K+E
Mapograph	1	Scale changes, 1/5 X - 5X	2,975	2,975	Autograph
Accessories	1	Transparency illuminator, roll film adapter	422	422	
	1	Curtain enclosure	355	355	
	1	Statmaker for making prints	1,780	1,780	
Multispectral viewer	1	Model 6040-PT	10,450	10,450	I ² S
Density Slicer	1	Electronic, color, with variable window (Model 704)	16,350	16,350	Spatial Data
Diazo Printer & Developer	1	Cutfilm, 9" x 9" Spare parts kit	550 50	550 50	Arkwright
Film viewer	2	Illuminated up to 9 1/2" wide for rolls	260	520	K+E
Light Table	2	Model GFL-918x, for roll films	1,045	2,090	Richards
Light Table	5	Table top 18" x 20" glass area, tilt top	167	835	NUARC
Light Table	2	Steel, 43" x 62" glass area, adjustable legs	626	1,252	NUARC
Counting Machine	2	Denominators with totalizers, 8 counting units	73	146	Forestry Suppliers
Planimeter	1	Compensating color, with adjustable arm and tracer lens	180	180	Forestry Suppliers

Table 4 LIST OF EQUIPMENT Cont'd

Imagery Interpretation Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/Vendor
Drafting Machine	2	Elbow-type	98	196	Forestry Suppliers
Strip Stereoscope	1	For continuous observation of strips of aerial photography	595	595	Wild
Stereoscope	1	For Dual Viewing, with parallax bar	2,200	2,200	Alan Gordon; Forestry Suppliers
Stereoscope	3	Mirror, 1.3x and 3x magnification (Nikon)	575	1,725	Alan Gordon; Forestry Suppliers
Parallax Bar	2	Measuring height (Nikon)	130	260	Alan Gordon; Forestry Suppliers
Stereoscope	5	Pocket	24	120	Alan Gordon; Forestry Suppliers
Height finder	5	For pocket stereoscope	56	2,801	Alan Gordon; Forestry Suppliers
Stereo Contour plotter	1	Stereocomparagraph	800	800	Alan Gordon; Forestry Suppliers
Magnifier	5	8x, clear plastic base (Agfa)	(2.50)	12	Industrial Photo
Tripod	1	Metal, telescopic	79	79	Industrial Photo
Field Outfit	2	For aerial photograph interpretation: photoholder plate, pocket stereoscope, slide rule, thread counter 8x, drawing accessories, leather case	385	770	Zeiss

Table 4 LIST OF EQUIPMENT Cont'd
Imagery Interpretation Laboratory

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
Lettering set	1	Leroy, Eleven templates, 11 std. pens, 7 reservoir pens, scribe, etc.	180	180	Forestry Suppliers
Rapidograph Pens	1	Set of nine	66	66	Forestry Suppliers
Drawing Instrument Set	1	Compass (2), divider ruling pen, etc.	25	25	Forestry Suppliers
Headliner	1	Dial-a-letter type	1,945	1,945	Varietyper/ Addressograph
Headliner Templates	10	Various formats and sizes	50	500	Varietyper/ Addressograph
Work Table	7	Folding legs	60	420	any
Drafting table	2	With tool & shallow drawer, wooden, tilting 37 1/2" x 72"	300	600	any
Rolling stands	2	For hanging/filing maps, etc. sheet sizes 36" x 52", 12 doz capacity	230	460	Forestry Suppliers
Map cabinet	1	Metal, see Appendix E	300	300	any
Map tube racks	2	Holds 36 tubes, 33 5/8" W x 15 3/4" D x 32" H	64	128	Forestry Suppliers
Furniture		To be selected		1,000	any
Miscellaneous parts, start-up supplies, etc.		Projected annual budget for low/medium production load		25,000	
			Total	93,657	

Table 5 LIST OF EQUIPMENT

Conference Room

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
Overhead Projector	1	With roll attachment, for transparencies	300	300	American Optical
Movie Projector	1	16mm	1,775	1,775	Kodak
Film Splicer	1	Universal	13	13	Kodak
Projection Screen	1	Wall/ceiling, glass beaded, 6'3" x 84"	96	96	Industrial Photo
Slide Projector	1	35mm carousel	280	280	Kodak
Slide Sorter/ Viewer	1	35mm, 30 slide capacity	16	16	Industrial Photo
Projection Pointer	1	Electric	120	120	Industrial Photo
Drawing Projector	1	For opaque, for horizontal and vertical projection	850	850	Fuller & D'Albert
Projector Table	1	Metal, with lift-up slide viewer, 17" x 17"	45	45	any
Sound Slide Projector	1	Modular tape playback programming system, uses Kodak Carousel projectors	356	356	Fuller & D'Albert
Light Table	1	Table Model, 18" x 20" glass area, with tilt top	167	167	NUARC
Lectern	1	Floor Model, wood 48" H 25" W 19" D, with outlets for P.A. & lights	320	320	Fuller & D'Albert
Blackboard	1	4' x 6', with peg board	200	200	any
Furniture		To be selected		1,500	any
			Total	6,038	

Table 6 LIST OF EQUIPMENT

Offices*

Item	Qty.	Description	Unit Cost (\$)	Total Cost (\$)	Manufacturer/ Vendor
Calculator	6	Desk, basic model	200	4,200	any
Typewriter	2	Electric	300	600	any
Dictating Machine	1	Tape	200	200	any
Furniture		To be selected		6,000	any
Miscellaneous				2,000	any
			Total	12,000	
<p>Chief (1); Scientist (4); Receptionist/Secretary (2).</p> <p style="text-align: center;"><u>FIELD EQUIPMENT</u></p> <p>Tents, cooking utensils, axes, shovels, binoculars compasses, altimeters, survey levels, etc</p> <p>Soil & water test kits, increment borers, tree diameter tapes etc</p> <p>Second Order Optical reading theodolite</p> <p>Tapes & miscellaneous surveying equipment</p> <p>Receiver for geodetic position by Transit satellite readout</p> <p>Electronic distance measuring instrument (10-mile range)</p> <p>Radiometer</p> <p>70mm cameras with assorted lenses</p> <p>portable electronic calculators</p>					
			Total	54,000	

ANNEX J

NAS Report Titled Resource Sensing From Space:
Prospects For Developing Countries

(On file in AFR/RA)

ANNEX K

PERSONNEL STAFFING TABLE

Annex K. Personnel Staffing Table

Staffing Table by Calendar Year:

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Personnel Year Total
00 Project Manager (Confltz)																	1
01 Secretary (Ogudz)																	1
02 Admin. Asst. (Bekele)																	1
03 Lab Asst. Trainee (Odumo)																	1
04 Accounts Asst. (Jingo)																	1
Contract Staff (Falconer)																	1
Contract Staff (Hart)																	1
Photo Lab Consultant (Meber)																	1
05 Photo Lab Specialist (Snykoff)																	1
06 Photo Lab Specialist (open)																	1
07 Lab Asst. Trainee (Ochola)																	1
08 Driver (Othman)																	1
09 1st Counterpart																	1
10 2nd Counterpart																	1
11 3rd Counterpart																	1
12 4th Counterpart																	1
13 5th Lab. Asst. Trainee																	1
14 6th Lab. Asst. Trainee																	1
15 7th Lab. Asst. Trainee																	1
16 Secretary/Typist																	1
17 Driver																	1

Positions Filled

Positions Open

ANNEX L

ORIGINAL PROJECT PAPER

(On file in AFR/RA)

PROGRAM GOAL

To assist and improve agricultural and natural resource management and exploitation in developing countries.

Utilization of remote sensing data will assist government planners and decision makers in promoting land and water resource development for the rural and urban poor.

MEASURES OF GOAL ACHIEVEMENT

The lives of the rural and urban poor are improved by the development of their country's natural resources.

MEANS OF VERIFICATION

Surveys

ASSUMPTIONS FOR ACHIEVING GOAL TARGETS

Improved natural resource data will contribute to improved agricultural and natural resource management.

Improved agricultural and natural resource management and exploitation will improve the lives of the rural and urban poor.

LOGICAL FRAMEWORK

ANNEX - M

BEST AVAILABLE DOCUMENT

PROJECT PURPOSE	END OF PROJECT STATUS	MEANS OF VERIFICATION	ASSUMPTIONS FOR ACHIEVING PURPOSE
<p>To assist participating countries in the adaptation of new procedures and techniques for the utilization of remote sensing data.</p> <p>These data will provide participating countries with a reliable foundation for making appropriate management and exploration decisions concerning their agricultural and natural resources.</p>	<p>15 participating countries and all AID missions in East and Southern Africa have been introduced to and some are utilizing remote sensing data.</p> <p>Countries and missions are knowledgeable in the sources, applications, and benefits of remote sensing data and the assistance available from the Facility.</p> <p>Countries and missions beginning to conduct their own resource investigations.</p>	<p>AID and Facility records</p>	<p>Utilization of remote sensing technology will provide improved agricultural and natural resource data.</p> <p>Participating countries and AID missions have need for services and products available from Facility.</p>

BEST AVAILABLE DOCUMENT

OUTPUTS	MAGNITUDE OF OUTPUTS	MEANS OF VERIFICATION	ASSUMPTIONS FOR ACHIEVING OUTPUTS
1) Operational Regional Remote Sensing Facility.	1) Facility providing user assistance to participating countries and project design and monitoring assistance to AID missions.	1) Facility records.	1) Participating countries and AID missions request Facility Assistance.
2) Seminars, short-courses, and on-the-job training are conducted at Facility.	2) 18-24 persons/year per participating country trained through 2-3 weeks course in imagery visual analysis. 6-8 persons/year for all participating countries receive on-the-job training for a period of up to 6 months.	2) Facility records.	2) Participating countries are able to release personnel for seminars and training.
3) Equipping of remote sensing analysis laboratory and photo laboratory.	3) Interpretation and analysis of imagery and production of color enlargements. 1 to 10 specially processed satellite images per participating country for first year with subsequent images to follow as per demand.	3) Facility records, library and on-site visit.	3) Continued demand for laboratory results from participating countries.
4) Distribution of remote sensing data products to participating countries.	4) Imagery, enlargements, and interpretations sent to participating countries. 1 to 10 specially processed satellite images per participating country for first year with subsequent images to follow as per demand.	4) Facility records.	4) "do"
5) Trained indigenous personnel for key Facility positions.	5) Key posts of Facility staffed by 4 persons from participating countries.	5) Facility records.	5) Personnel for advanced training are located and participant training is successful.
6) Functioning library.	6) Facility for storage and retrieval of remote sensing data and image review capabilities for selection of imagery.	6) On-site visit.	

BEST AVAILABLE DOCUMENT

ID:	IMPLEMENTATION TARGET (TYPE AND QUANTITY)	MEANS OF VERIFICATION	ASSUMPTIONS FOR PROVIDING INPUTS
1) Short and long-term technical assistance.	1) One direct-hire Project Director (Photogrammetrist) Three contract-hire specialists: 1- Program Manager (Geographer) 1- Photographic Services Manager (Geographer) 1- Image Analysis Specialist (Ecologist) 20 Short-term consultancies of 2-3 weeks duration.	1) Direct and contract-hire personnel already at project site. AID and Facility records.	1) Direct and contract hire personnel will remain during the life of the project.
2) Commodities	2) Equipment for remote sensing analysis laboratory and photo laboratory. 1 @ Project Vehicle	2) Equipment received by Facility or on order. Project Vehicle already at project site. AID and Facility records.	2) Facility has capacity to utilize additional equipment.
1) Long-term participant training.	3) 200 person-months primarily U.S. training.	3) AID and Facility records.	3) Personnel are available for training.
1) Landsat imagery.	4) Aircraft and satellite imagery from the EROS Data Center, Sioux Falls, South Dakota.	4) Facility and library records.	4) Continued receipt of imagery from EROS Data Center.
HLR DONORS:			
1) Host organization (Centre) provided facilities.	1) Building with area for offices, laboratories, and library. Administrative and accounting assistance. Building overhead.	1) Building and personnel assistance is already being provided. Centre and Facility records.	1) Host organization will continue to provide present building and staff until will construct new building by 1982.
1) Participating countries financial and personnel assistance.	2) Salary support for trainees and administrative staff.	2) Personnel assistance is already being provided. Facility records.	2) Financial and personnel assistance from participating countries will continue.

BEST AVAILABLE DOCUMENT

ANNEX N

**DESIGN REQUIREMENTS AND EQUIPMENT SPECIFICATIONS
FOR REGIONAL
REMOTE SENSING USER ASSISTANCE FACILITIES**

(On file in AFR/RA)

ANNEX O

The following is the present contract status for the three specialists currently assigned to the Regional Remote Sensing Facility:

Spectral Data Corporation (Hauppauge, New York)

Allan Falconer (Program Manager)

25 July 1973 to 24 July 1979

Tom Hart (Image Analysis Specialist)

25 July 1973 to 24 July 1979

Personal Services Contract

Photo laboratory specialist.

This position is presently vacant and will be filled by June 1979 with PSC or PASA specialist.

INITIAL ENVIRONMENTAL EXAMINATION

I. Project Description

The proposed project will provide funding for technical assistance, commodities and training to develop a regional remote sensing training and user assistance facility which will train local resource administrators and technicians in the use of modern technologies appropriate for their work. Remote sensing technology, using earth resources satellite imagery, is a cost effective means of collecting data needed to improve resource assessments and management practices and to guide planners in the identification of areas requiring more attention.

The Facility will have adequate physical facilities to analyze, process and duplicate all forms of satellite and aircraft imagery. It will have a Landsat browsefile and a data base of maps, aerial photographs and other pertinent documents. The Facility will share office space provided by the Regional Centre for Services in Surveying and Mapping. Specifically, the Regional Remote Sensing Facility has been planned to provide the following:

- 1) training by means of seminars, short-courses, and on-the-job training for remote sensing specialists, resource managers and others;
- 2) interpretations and analytical assistance for users lacking skills and facilities of their own;
- 3) distribution of remote sensing data products;
- 4) reproduction facilities for photo and digital material;
- 5) storage and retrieval of remote sensing data, and
- 6) image review facilities for easy selection of desired imagery.

AD input to this project will consist of:

- 16 person-years of technical assistance;
- 25 person-months of consultancies;

DATA AVAILABLE DOCUMENT

- commodities for remote sensing analysis laboratory and photo laboratory;
- short-term participant training; and
- Landsat imagery

II. Discussion of Impacts

A. Land Use

The small amount of chemical wastes from the photo laboratory, such as developing fluids, can be treated without harmful effects to the public sewage treatment system. Also, the discharge will be monitored by the Nairobi City Council to assure conformance with existing regulations so no harmful discharges occur. No negative effect on the sewage system is anticipated. The techniques being introduced and fostered by this project will provide the best means of giving the participating countries the data they need to optimize the production, location and protection of range, agricultural and forest land.

B. Water quality

The water data collected and analyzed by this project will assist the countries involved in better water management.

C. Atmosphere

This project will not create any air additives or pollutants.

D. Natural Resources

The project will provide data that will assist the countries in attaining more accurate knowledge of the physical characteristics of natural resources such as the amount, location, condition, distribution, and rate of change that will facilitate future planning. The overall effect will be beneficial.

E. Cultural

It is not anticipated that the activities of this project will effect the cultural heritage of the people.

F. Socio-Economic

As project data are analyzed and beneficial programs are initiated, the long term effects should greatly benefit the people of the various countries. It may, for example, eliminate the traditional haphazard grazing movements that are now so prevalent. Subsequent projects, making use of the data collected through the work of the Centre and the Facility will, of course, examine the socio-economic implications which might specifically result.

G. Health

The improved data collected as a result of the project should permit revised and additional public health programs in the participating countries. No part of the project will directly affect the health of the people.

Recommendations

No detrimental environmental effects are anticipated from the participation of developing countries in remote sensing activities. Remote sensing is a method of collecting data and has no direct impact on the environment. Systematic data collection by means of remote sensing technology will enable participating countries to improve the management of their agricultural and natural resources. Thus, it is beneficial to the environment in both the long and short term. Remote Sensing itself is an environmental monitoring tool. The training activities under this project will establish the basis for improved land, water and range management. A negative determination is therefore recommended.

INITIAL ENVIRONMENTAL EXAMINATION

Project Location: Nairobi, Kenya

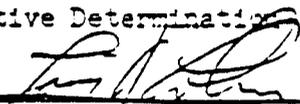
Project Title: Regional Remote Sensing Facility

Project Number: 698-0414

Life of Project: 4 Years

EE Prepared by: Curtis Andersen *CA*
Environmental Officer
REDSO/EA, September 1978

Environmental Action Recommended: Negative Determination

Concurrence: 

Director
REDSO/EA
Date: 5 Oct 1978

Assistant Administrator's Decision: _____

Date: _____

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact
Identification
and
Evaluation^{1/}

A. LAND USE

- | | |
|--|---|
| 1. Changing the character of the land through: | |
| a. Increasing the population----- | N |
| b. Extracting natural resources----- | N |
| c. Land clearing----- | N |
| d. Changing soil character----- | N |
| 2. Altering natural defenses----- | N |
| 3. Foreclosing important uses----- | N |
| 4. Jeopardizing man or his works----- | N |

B. WATER QUALITY

- | | |
|--|---|
| 1. Physical state of water----- | N |
| 2. Chemical and biological states----- | N |
| 3. Ecological balance----- | N |

1/ Use the following symbols: N - No environmental impact
 L - Little environmental impact
 M - Moderate environmental impact
 H - High environmental impact
 U - Unknown environmental impact

BEST AVAILABLE DOCUMENT

IMPACT IDENTIFICATION AND EVALUATION FORM

ATMOSPHERE

- | | |
|-------------------------|----------|
| 1. Air additives----- | <u>N</u> |
| 2. Air pollution----- | <u>N</u> |
| 3. Noise pollution----- | <u>N</u> |

D. NATURAL RESOURCES

- | | |
|---|----------|
| 1. Diversion, altered use of water----- | <u>N</u> |
| 2. Irreversible, inefficient commitments----- | <u>N</u> |

E. CULTURAL

- | | |
|---|----------|
| 1. Altering physical symbols----- | <u>N</u> |
| 2. Dilution of cultural traditions----- | <u>N</u> |

F. SOCIO-ECONOMIC

- | | |
|---|----------|
| 1. Changes in economic/employment patterns----- | <u>N</u> |
| 2. Changes in population----- | <u>N</u> |
| 3. Changes in cultural patterns----- | <u>N</u> |

BEST AVAILABLE DOCUMENT

IMPACT IDENTIFICATION AND EVALUATION FORM

G. HEALTH

- | | |
|--|----------|
| 1. Changing a natural environment----- | <u>N</u> |
| 2. Eliminating an ecosystem element----- | <u>N</u> |

H. GENERAL

- | | |
|--------------------------------|----------|
| 1. International impacts----- | <u>N</u> |
| 2. Controversial impacts----- | <u>N</u> |
| 3. Larger program impacts----- | <u>N</u> |

5C(2) - PROJECT CHECKLIST

ANNEX Q

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE?
HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FAA Sec. 653(b); Sec. 634A.
(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?
4. FAA Sec. 611(b); FY 79 App. Act Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?
6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?
12. FY 79 App. Act Sec. 603. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate

technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

(2) [104] for population planning under sec. 104(b) or health under sec. 104(c); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children. using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(ii) to help alleviate energy problems;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

(v) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. [107] Is appropriate effort placed on use of appropriate technology?

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

3. Project Criteria Solely for Economic Support Fund

a. FAA Sec. 531(a). Will this assistance support promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102?

b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities?

PROJECT CHECKLIST

CROSS REFERENCES: THIS IS A REGIONAL PROJECT, THEREFORE COUNTRY CHECKLIST IS NOT APPLICABLE. STANDARD ITEM CHECKLIST HAS BEEN REVIEWED.

- A.
1. (a) Standard Congressional Notification procedures will be utilized.
(b) Yes
 2. (a) Plans are completed
(b) Firm estimates have been made (see section III.D. of project paper).
 3. No further legislation is required.
 4. N/A
 5. This is primarily a technical assistance project.
 6. This is a regional project involving countries throughout East and Southern Africa.
 7. (a) No
(b) No
(c) No
(d) No
(e) Yes, to the extent that data made available through the project will assist planners in a greater rationalization of resources
(f) No
 8. The project will have no direct effect.
 9. The U.S. is contributing 24% of all FX costs and 13% of all L/C costs. Grantee is contributing 14% of all FX costs and 67% of all LC costs. Other donors are contributing 62% of all FX costs and 20% of all LC costs.
 10. No
 11. Yes
 12. N/A

- B.
1. a. (a) The involvement of the poor will follow after the utilization of remote sensing data by governmental policy makers who are concerned with the country's agricultural and natural resources.
 - (b) Activity will not directly help develop cooperatives
 - (c) The developing countries' self-help efforts will be supported by the eventual practical utilization of their agricultural and natural resources.
 - (d) The activity will ultimately assist both women and men throughout their respective countries. The project will specifically attempt to recruit and train women from the various participating countries.
 - (e) The project's liaison activities will directly attempt to foster regional cooperation among the participating countries.
 - b. (1) Activity will assist governmental policy makers whose management and exploration decisions have a direct effect upon increased productivity of land and water resources. Most users of Facility services are persons employed by agricultural or agricultural related agencies.
 - c. Yes
 - d. This is a multi-laterally funded project. Grantee's contribution is 46% of project costs.
 - e. N/A
 - f. The project will enable highly skilled host country officials to interpret and apply remote sensing technology to the country's development problems.
 - g. Yes
2. This is grant assistance.
 3. This is not funded through ESF.

ANNEX R

ARTICLE IN CURRENT ANTHROPOLOGY

"The Use Of Landsat Data In Studies
Of Human Ecology"

(On file in AFR/RA)

93116650
1541

PROJECT FILE

App 5N, Ch 5, HB 3
(TM 3:26) 8-3-79

CLASSIFICATION
PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-47

1. PROJECT TITLE Regional Remote Sensing (Eastern Africa)	2. PROJECT NUMBER 698-0414 Formerly Project 531-1166 (i)	3. MISSION/AID/W OFFICE REDSO/EA + AFR/RA
4. EVALUATION NUMBER (Enter the number printed on the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each year)		
<input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION		

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 77 B. Final Obligation Expected FY 81 C. Final Input Delivery FY 82	A. Total \$ _____ B. U.S. \$ 1,430	From (month/yr.) September 1977 To (month/yr.) December 1978

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., program, SPAR, PIC, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
1. Issue periodic (monthly) progress reports to REDSO Director and AFR/RA project officer.	Merrill Conitz	Starting Jan. 1979
2. Send copies of existing and future PIO/C's, PSC's, and trip reports to AFR/RA.	Merrill Conitz	Feb. 1979
3. Begin training at Remote Sensing Facility.	Merrill Conitz	February 1979
4. Issue remaining PIO/C's.	Merrill Conitz	March 1979
5. Recruit photo-laboratory technician's replacement.	REDSO/EA	April 1979
6. Conclude interim arrangement with suitable local photo laboratory for temporary staffing and maintenance of Facility's photo laboratory, training, and photo processing.	REDSO/EA	Feb. 1979
7. Expedite procurement and delivery remaining equipment.	REDSO/EA in collaboration with AFR/RA	Sept. 1979
8. Select counterparts for AID contract technicians (Falconner and Hart)	Merrill Conitz	March 1979
9. Encourage Mapping Centre to attract wider African and donor participation, including UNDP and UNEP.	Merrill Conitz	
10. Ensure that copies of all relevant correspondence and documentation are sent to AFR/RA.	Merrill Conitz	
11. Conduct in-depth project evaluation one year hence.	REDSO/EA in collaboration with AFR/RA	Dec. 1979
(ii) REDSO has submitted revised PP to AID/W. Review will be after receipt of this evaluation.		
(iii) FY 1980 CP envisages LOP through FY 1982.		
(iv) Revise ProAg to provide FY 1979 AID funding and to secure more office space and alterations funding from Regional Mapping Centre to permit completion of photo laboratory installation.		

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS	10. ALTERNATIVE DECISION ON FUTURE OF PROJECT
<input checked="" type="checkbox"/> Project Paper (ii) <input type="checkbox"/> Implementation Plan <input checked="" type="checkbox"/> Financial Plan (iii) <input type="checkbox"/> CPI Network <input type="checkbox"/> Logical Frameworks <input type="checkbox"/> PIC/T <input checked="" type="checkbox"/> Project Agreement (iv) <input type="checkbox"/> PIC/C <input type="checkbox"/> _____ <input type="checkbox"/> PIC/P <input type="checkbox"/> _____ <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> _____ <input type="checkbox"/> Other (Specify) _____	A. <input type="checkbox"/> Continue Project Without Change B. <input type="checkbox"/> Change Project Design and/or Change Implementation Plan <input checked="" type="checkbox"/> Change Implementation Plan C. <input type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER BANKING PARTICIPANTS AS APPROPRIATE (Name and Title)	12. MISSION/AID/W OFFICE DIRECTOR APPROVAL
Merrill Conitz, Project Officer Brian Wickland, AID/AFR/RA Charles Withington, AID/DS/ST Donald Ralily, REDSO/EA	Signature Typed Name LOUIS J. ... Director, REDSO/EA Date 12/20/79

BEST AVAILABLE COPY

SUMMARY:

The purpose of the Remote Sensing Facility project (931-1166) is to make satellite data and related resource analysis techniques available to African resource managers, primarily through training. The project began with the arrival of project director Conitz in September 1977. Delays in obtaining personnel and equipment, primarily due to complex administrative procedures in Washington, have put off the start of training until early 1979. Faculty for training arrived in August 1978. Arrival of equipment has been delayed more than a year. The equipment that has been received has come primarily from USG surplus stocks. A photographic processing capability for black and white pictures is available now, but equipment needed for color processing will not arrive for another year, necessitating contracting for these services.

Because the one year delay has set back end of project status until FY 1981, at least an additional year of operational funding will be needed. Other uncertainties in achieving EOPS include the question of the Regional Mapping Centre, the host institution being able to achieve the member-country and external donor country support needed to function properly.

Suggestions for improved efficiency in running the project include closer liaison between REDSO and AFR/RA, contracting in the field by REDSO whenever possible, and periodic (monthly) progress reports to AFR/RA.

EVALUATION METHODOLOGY:

The methods used in this first project evaluation include: (1) examination of project design in relation to the project paper; (2) examination of all relevant files at REDSO/EA; (3) interviews with those most closely associated with the Regional Remote Sensing Facility, both African and expatriate; and (4) development of solutions to problems identified and discussed during this evaluation. Those associated with the project include: Merrill Conitz, the Facility's Director as well as REDSO Project Manager (and hereafter referred to as the Project Manager); Peter Anyumba, Director of the Regional Mapping Centre (to which the Facility is attached); Allan Falconner and Thomas Hart (AID contract remote sensing staff); Ron Senykoff (REDSO PSC remote sensing/photographic laboratory specialist); and members of the REDSO/EA staff who have been most involved with the operation of the Facility - Louis Cohen, Don Reilly, George Rublee, and Steve Norton. Included on the project evaluation team are Don Reilly (REDSO/EA), Clarks F. Withington (remote sensing specialist, AID/DS/ST), and Brian Wickland (project officer, AID/AFR/RA).

EXTERNAL FACTORS:

The extent of African governments' financial commitment to regional cooperation is open to doubt, and this is, unfortunately, exemplified by the lack of member country support for the Regional Mapping Centre, an inter-governmental institution based in Nairobi to which the Regional Remote Sensing Facility is attached. Notwithstanding its five-state membership, Kenya has provided most of the financial support until recently, although Uganda is now reported to be making financial contributions and the prospect is in view of Tanzania paying its arrears. One member state - Malawi - has in recent months not bothered to send representatives to the periodic meetings of the Regional Mapping Centre's Board of Governors and Technical Advisory Committee (which meet twice yearly). Although the Centre's Board of Governors has called for expanding membership, the latter has remained unchanged since the Centre was created in 1975. It is understood that this is more an adverse reflection on the direction and management of the Centre itself than on the will of the member states. While the Remote Sensing Facility's affiliation with the Centre has provided the boon of generous accommodation and some administrative support, this may also carry with it the disadvantage of 'guilt by association' with an institution which does not currently enjoy the full confidence and support of its African membership. This may also adversely affect the willingness of other donors to support the Remote Sensing Facility's program, just as it has already led to interested donors withholding material support to the Regional Mapping Centre. However, based on the courses and seminars organized by

other organizations, there has been no unwillingness on the part of African states to detach students for remote sensing training.

INPUTS:

There have been significant delays in obtaining both staff and U.S. produced equipment for the Facility; so much so that implementation would appear to be at least one year behind schedule. Delays in meeting staffing needs are mainly attributable to procedural considerations in Washington, involving AID/W and the Small Business Administration. These resulted in an insistence on small business 'set-aside' and a second review of responses to the RFP (since the first response by nine small businesses was considered technically inadequate). Further delay ensued from one firm's contesting the findings of the second technical review panel, and two of the three contract personnel envisaged in the PIO/T only arrived in Nairobi in August, 1978 - nearly one year after the Project Manager's arrival at post. The project has not been without its share of bad luck in the efforts by REDSO/EA to engage other technical staff under Personal Services Contracts (hereafter PSCs). A first recruit (Jimmie Weber) left the project in December 1977, and a successor (Ron Senykoff) did not arrive until September 1978. Owing to family considerations the latter will be obliged to leave the project in mid-December 1978.)

Equipment procurement and shipment also seem to have been unreasonably delayed, partially attributed to late issuance of some PIO/Cs and partly to poor performance by the Afro-American Purchasing Centre (AAPC). The Facility's Project Manager is to be commended for his initiative in obtaining surplus photographic laboratory equipment from a terminated AID project in Afghanistan and from the U.S. Census Bureau in Washington. Not all the surplus equipment under order has yet arrived (with significant delays incurred by AAPC in effecting Stateside procurement and shipments, and with some questions raised as to the condition of Stateside surplus equipment), but on the basis of deliveries to date his initiative has led to acquisition of many thousand dollars' worth of useful equipment and supplies at nominal cost. At the time of this review (December 1978) an estimated 50 per cent of equipment needs had arrived. In this connection it should be noted that a TDY photographic laboratory technician on PASA to AID from the Defense Mapping Agency briefly visited the project in October 1978, and has since made some useful suggestions as to equipment specifications and laboratory lay-out. After his return to the States in November, he undertook follow-up enquiries with agencies holding surplus laboratory equipment destined for the project. On the basis of information given to him over the telephone, he discovered that some

surplus items had been switched and that some were in dubious condition. Perhaps more significantly, his enquiries revealed serious delays on the part of AAPC in contacting supplies and arranging for shipment to the project site.

Thanks to the Kenya Government's financial support of the Regional Mapping Centre, host organization input has generally been adequate. As envisaged in the Project Agreement, the Regional Mapping Centre has contributed a considerable amount of high quality office and laboratory space at its premises in the Nairobi Industrial Area (about five miles from the REDSO office). Mapping Centre funds have covered some alterations to the premises, and its staff have provided a measure of administrative support. The REDSO Project Manager and his technicians are installed in these premises, and project funds have been used to engage African staff for the Facility (a photo-laboratory trainee, and administrative assistant, a driver, and two secretaries), and to effect local procurement of office furniture and a Range-Rover four-wheel-drive vehicle. It is hoped that the Mapping Centre's Director can be persuaded to provide space and funding necessary for accommodation of the photo laboratory's colour operations, and discussions between him and the Project Manager are currently under way.

OUTPUTS:

In the fourteen-month period since the Project Manager's arrival no training courses have been conducted at the Facility. Plans for convening the first course - initially scheduled for January 1979 - have been postponed. Since the principal project activity is training of Africans in the utilization of satellite data and related resource technologies, it is apparent that the training program is far behind schedule. While significant delays in arrival of U.S. technicians and equipment are major mitigating factors (the REDSO Director doubted whether any training could have been undertaken at the Facility during the first year of the project), the evaluation team felt that at least a training program could have been developed and some training undertaken by the time of the present review. Basic training in remote sensing theory and application did not require prior receipt of all AID-funded project input, and in the interim period greater recourse might possibly have been made to qualified training staff at the University of Nairobi and remote sensing-related photographic equipment at Kenya Government installations (although there were some doubts expressed as to the condition of such equipment).

In discussing this observation with the Project Manager, the latter noted that he had participated (as a lecturer or panelist) in five remote sensing-related training courses for Africans since January 1973. These included an International Development Research Centre (IDRC) workshop, workshops on automated cartography and

gravity, and a National Council of Science and Technology seminar - all held in Nairobi. Plans have also been made for assisting in a UNEP environmental training course later in December 1978. The Project Manager questioned the utility of organizing low level training courses of little practical value (in the absence of supporting U.S. technicians and sophisticated photo laboratory equipment), particularly when the above-mentioned seminars and workshops had reflected a high level of technical competence. To have organized Remote Sensing Facility courses without adequate technical support would have given rise to false expectations on the part of trainees, he felt, and harm to the Facility's prestige. Training courses offered in Nairobi would have to aim for a high level of achievement, and he felt that it was vital for the Facility's laboratory to be on a fully operational footing (to produce imagery, colour composites, etc.) before training could be meaningfully undertaken.

In retrospect, however, he agreed with the evaluation team that the Facility might have offered introductory courses in other member-States not having Nairobi's sophisticated training, resources, or otherwise complemented the highly technical Nairobi-convened seminars and workshops by offering something less technical for African managers and planners. The Project Manager had earlier had teaching experience at the University of Nairobi, and could be supported by TDY U.S. technicians and/or locally-recruited African postgraduates and faculty staff pending arrival of the U.S. long-term contract technicians. A PASA with the U.S. Geological Survey had been signed in April 1978, providing support services for training valued at 75,000 dollars.

To highlight the project's failure to initiate training activities in as timely a fashion as might have been possible is not intended to undervalue the Project Manager's personal contribution to the workshops and seminars organized by the development-related institutions mentioned above. Nor is this intended to undervalue his pursuit of other activities authorized in the Project Paper, including technical services rendered to Botswana, Lesotho, Swaziland, and Tanzania (pursuant to government requests received by the Regional Mapping Centre/Remote Sensing Facility), and drafting of a remote sensing project PID for USAID/Bujumbura. Particularly when delays in contracting and procurement were being experienced, it could be argued that pursuit of these secondary project goals was probably the best that could have been expected. The evaluation team nevertheless concluded that - particularly in recent months - more effort should have been devoted to the primary training objective. In future, consideration ought to be given to using the faculty and students of the University of Nairobi for this purpose.

After recruitment under PSC of an exceptionally well-qualified remote sensing specialist photo laboratory technician (Rou Senykoff) in September 1978, noteworthy strides were made in establishment of the photo laboratory and stocking of the Centre's reference library. The USG surplus equipment was by that time beginning to arrive and was promptly refurbished and made ready for operation; additional equipment was placed on order; structural alterations to the premises were undertaken to transform bank building offices into a photo laboratory capable of conducting black-and-white operations; and an African counterpart for the photo engineer was selected and given initial on-job training. The need for additional space on the ground floor of the Centre's premises, and the need for installing water heating and air filtration/conditioning systems constitute overriding constraints to colour processing. As earlier noted, discussions are currently under way with the Centre's Director so that the requisite space, alteration approvals, and some of the funding might be made available by the Centre for this purpose. It might also be appropriate to address these needs in the forthcoming revised Project Agreement (covering FY 79 AID funding) between REDSO and the Regional Mapping Centre.

An even more limiting factor to placing the photo laboratory on a fully operational footing is the imminent departure of Mr. Senykoff, the photo engineer (for family reasons). Addressing himself to this problem, the Project Manager has proposed that REDSO contract with a local photo laboratory to provide interim staffing for the Facility's laboratory, maintenance of its equipment, assistance in training, and photo processing services. The evaluation panel endorses this proposal, which would require a code 935 waiver, on the understanding that this would be an interim measure, pending recruitment of qualified photo laboratory personnel for the Facility. A justification for such a waiver will be cabled to AID/W for prompt consideration with the project paper.

PURPOSE:

The purpose of this project is to make satellite data and related resource technologies available to African resource managers and development planners, by training Africans in the utilization of these technologies. Expressed in broader terms, this project would transfer remote sensing technology to Eastern and Southern Africa. The End of Project Status (EOPS) would find the Facility staffed by trained Africans and fully self-sustaining through contributions from African member states and revenue from services rendered. There would be a cadre of resource managers in each of the member states trained in the uses of remote sensing in collecting and analysing resource data derived from satellite and aircraft imagery, with resource planning well under way through the use of these techniques.

The Facility would be fully operational in terms of training, data storage and retrieval, and data-user services. In terms of these objectives, it is evident that, until training is well under way, the purpose of this project will be in no way near attainment. The vital role of training is evident, and in view of the previously mentioned delays, the evaluation panel estimates that the project is at least one year behind schedule. The project is only funded through FY 1978 (as DS/ST project 931-1166), with commitments subject to availability of funds through FY 1979 (as AFR/RA project 698-0414). Full End of Project Status will not be obtained until FY 1982 at the earliest, and then only if further project funding of at least two years (FY 1980 and FY 1981) can be obtained. REDSO has submitted a revised Project Paper to AID/Washington where it will be reviewed after receipt of this evaluation.

An extra-project factor which would enhance the effectiveness of this project would be acquisition of a LANDSAT data receiving capability in East Africa. Kenya has announced plans to construct a permanent receiving station, and it is assumed that the Remote Sensing Facility would become an integral part of any such installation.

GOAL:

In its broadest terms the goal envisaged for project 931-1166 was to improve resource exploration and management procedures through assistance in acquisition and use of remote sensing technology and earth resource data. The indicator cited in the Project Paper was utilization of remote sensing technology by (African) resource agencies, as indicated by establishment of permanent organizations for use of remote sensing, reports of remote sensing-related projects in LDCs, and the quantity of LANDSAT data ordered. This is a long-term goal, and little in the first fourteen months of the project under review suggests that attainment is significantly under way in Eastern and Southern Africa.

Nonetheless, an encouraging sign is the Kenya Government's declaration at the African Remote Sensing Council plenipotentiary meeting (Ouagadougou, July 1973) of its intention to construct a permanent receiving station. It is understood that the Government has allocated five million dollars for this purpose and that - if construction were undertaken - the Regional Remote Sensing Facility would be relocated at the permanent station. However this is still subject to the Kenya Government's or external donor's coming forward with an estimated additional several million dollars to meet total construction and equipment costs, and a positive final decision on construction is unlikely to be taken in the near future.

The future of the Regional Mapping Centre appears uncertain, owing partly to the Kenya Government's concern over lack of other

member country participation, and partly to concern on the part of member countries over the inertia manifested in the direction and management of the Centre itself. Should the Kenya Government choose not to renew the Mapping Centre's lease on its current premises (to lapse in two years' time), it is conceivable that the Remote Sensing Facility might have to be re-established as a separate legal entity, in order to avoid foundering in the wake of the Mapping Centre. In such an event, substantial additional donor funding would be required to meet the cost of premises and staffing.

While it has earlier been suggested that African governmental appreciation of remote sensing technology as an effective tool of the development process may have been over-estimated, the best means of attracting the imagination and support of African resource managers and planners would still seem to be the Facility's performance as trainer and supplier of meaningful technical services. Recruitment and procurement delays have caused the Project Manager to give greater weight to the latter at the expense of the training goal, but now that the availability of temporary and long-term technicians seems more assured the balance should be restored and priority returned to establishing and implementing a training program for Africans.

BENEFICIARIES:

In the short run, resource personnel of the five (current) member countries plus personnel of other African countries having access to the Facility's training and advisory services will benefit from improved data collection and analysis techniques. The ultimate beneficiaries will include the large majority of Africans within the region whose livelihood derives from agriculture and the exploitation of other natural resources.

UNPLAINED EFFECTS ON THE PROJECT:

Failure of the Regional Mapping Centre to attract widespread support from its membership has adversely affected the willingness of other donor countries to implement their assistance pledges. For example, the Swiss pledge of photogrammetry equipment to the Centre (which would have complemented the Facility's photographic equipment,) has been "put on ice." Other external donors have expressed similar reservations, but these are interpreted by REDSO as expressing lack of confidence in the Centre's present direction rather than in the concept of the Regional Mapping Centre itself.

The project evaluation team feels that multi-donor participation should be encouraged and expanded, and suggests that the periodic

meetings of the Centre's Technical Advisory Panel (which also discusses the Remote Sensing Facility), be opened to a wider range of donor and potential donor participation. This would include representation of a wider spectrum of the UN system than merely ECA (whose representative chairs the meetings). At a meeting with AID/W evaluation team members on 1 December 1978, Mr. Robert Kitchen, the UNDP Resident Representative, agreed to send a UNDP representative to such meetings, "if invited." The potential central role of UNEP in UN remote sensing activities should be exploited to the fullest extent possible, in the hope that UNEP and UNDP participation might lead to technical and material assistance. In view of their overlapping interests as well as their close proximity to each other in Nairobi, it is conceivable that the Regional Mapping Centre/Remote Sensing Facility could serve as one of UNEP's executing agencies within the East/Southern African context of UNEP's global interest in remote sensing activities.

LESSONS LEARNED:

In retrospect, the project would be much further along if training at the Facility had actually started, or at least plans for training had been more developed. While framers of the project may have expected results too early, and the lag time for recruitment and procurement were underestimated, training plans could have been developed to permit commencement of training activities at least by the time of this evaluation.

The need for keeping AID/W fully informed as to project developments and difficulties cannot be overstated. Copies of all cables, correspondence, trip reports, PIO/Cs, PIO/Ts, PSCs, etc. should be sent to the appropriate AID/W project officer AFR/RA in timely fashion. To systematize reporting, and in order to highlight difficulties and possible need for AID/W remedial action, the evaluation team endorses the REDSO Director's instruction of October 1978 that a monthly progress report on the Remote Sensing Facility be submitted to him and AFR/RA henceforth. Based on the experience of the Regional Remote Sensing Centre in Ouagadougou, this should enable AID/W to take whatever follow-up action appears necessary in relation to Stateside contractors, procurement agencies, suppliers, etc. As far as contracting is concerned, the experience of this project suggests that greater efficiency can be attained through contracting in the field rather than in Washington.

In a more general sense, project designers should note from the experience of this project the significantly long time required to obtain personnel and equipment. Either more time must be allowed for implementation, or more direct and forceful involvement should be required on the part of AID/W project officers to assist in identifying 'bottlenecks' and surmounting procedural and possibly operational obstacles. Participation of AID/W at the Mapping Centre/Facility's

Technical Advisory meetings should be encouraged, to maintain contact with the problems of the project. Although not of immediate consequence for this project, the uncertainties of host and other member countries' involvement should be recognized, and contingency plans made.

SPECIAL COMMENTS

A primer for similar projects in other countries might include the following advice. Begin plans for training as soon as possible, so that the first course can take place as soon as sufficient personnel and equipment are in place. The first few courses may appear to be failures in the eyes of expatriate project personnel, but valuable experience and insight will be gained. When plans for the first major training project are completed, an announcement should be forwarded to each appropriate ministry, university, and AID mission. A three-month lead time should be allowed for each course, to permit acquisition of data tailored to the needs of each registered student. Training plans should include selection of one or two test sites on the basis of (1) their diverse geology, hydrology, and geomorphology, (2) easy access to the class-room, and (3) other resource characteristics relevant to the students' background and vocational needs (including land use variety, land capability characteristics, and rangeland, agricultural, and forestry features which can be studied from space). Local instructors should be obtained who know the local geology and other natural, agricultural and physical features of the area. These on-site lectures should be organized around LANDSAT imagery.

NATIONALITY WAIVER FOR SERVICES

A nationality waiver is requested for the purchase of services from suppliers of Code 935 nationality. The life of project cost of these services is estimated to be \$160,000. The types and estimated costs of the services are:

A. Aerial photography	\$90,000
B. Image and photo processing	\$25,000
C. Aircraft rental	\$40,000
D. Motor vehicle rental	\$ 5,000
	<u>\$160,000</u>

Justification for Waivers

A. Aerial photography services. A waiver for procurement of aerial photography services from suppliers of Code 935 nationality is justified because the cost of procurement from U.S. nationality suppliers exceeds the cost from non-U.S. suppliers by fifty percent or more. It would not be practical, financially or logistically, to obtain these services from U.S. firms. There are no known aerial photography firms of U.S. nationality operating in or near the project area. Nor are there Kenyan owned firms providing these required services. There are no practical substitutes for the provision of aerial photography services; therefore it will be necessary to utilize locally available services which are supplied by firms of European nationality in order to accomplish project objectives. Aerial photography is frequently necessary in resource analysis and mapping

to show a level of detail not always visible on the satellite imagery. It is generally recognized that a combination of satellite imagery, aerial photography and ground verification is necessary for a complete resource analysis.

B. Image and photo processing. A waiver for procurement of satellite image and photo processing from suppliers of Code 935 nationality is justified because this procurement would best promote the objectives of the foreign assistance program. While it is possible to obtain some processing services from the U.S. (the Spectral Data contract is being amended to include these services), most processing requires the presence of the remote sensing specialist to adjust color or tone and otherwise achieve the results required for interpretative work. There are some firms of Kenyan nationality which do photo processing, but none have the capability to handle the large formats associated with aerial photography and satellite imagery. Furthermore, these firms do not have the equipment for precision enlarging and tilt rectification needed in mapping. Until the Facility's Labs are equipped to handle this kind of photo processing, it will be necessary to procure these services from European-owned firms based locally. The Facility's laboratories are being equipped to handle this kind of work but it may be several months before all equipment is installed, tested and staff trained to produce quality products. Even after that there will be occasional need to procure services from European nationality firms to accommodate heavy demands and when the Facility's

equipment is being used for training courses.

C. Aircraft rental. A waiver for procurement of rental aircraft services from suppliers of Code 935 nationality is justified because the cost of procurement from U.S. nationality suppliers exceeds the cost from non-U.S. suppliers by fifty percent or more. It would not be practical, financially or logistically, to obtain these services from U.S. firms. The cost of renting aircraft from firms of U.S. nationality would exceed by several times the cost of services of European nationality available in Kenya since there are no U.S. firms operating in the project area. There are no known aircraft rental firms of Kenyan nationality and there are no practical substitutes for aircraft travel under certain circumstances.

Rental aircraft would be used primarily for observing various resource phenomena to verify interpretations from the satellite imagery on a sample basis. There are also requirements for hand held 35 and 70 mm photography from light aircraft to verify satellite interpretations and to supplement higher altitude mapping aerial photography. There will be periodic requirements to transport personnel and equipment to remote sites not accessible by ground transport. For example, in the cooperative mapping project between the Facility and the Survey of Kenya, there is a requirement to establish geodetic control points to aid the precision enlargement

of the imagery. This will be accomplished with a portable navigation satellite receiver now being acquired by the Facility. The most feasible means of transporting this equipment is by light aircraft.

D. Motor Vehicle Rental. A waiver for procurement of vehicle rental services from suppliers of Code 935 nationality is justified because the cost of procurement from U.S. nationality suppliers exceeds the cost from non-U.S. suppliers by fifty percent or more. It would not be practical, financially or logistically, to obtain these services from U.S. firms, since except perhaps in Kenya there are no U.S. nationality firms doing business in the project area. In some cases it will be possible to obtain these services from local firms and these will be used in preference to Code 935 sources when appropriate.

Vehicle rental is required to transport students, staff and equipment during training courses and field exercises. Since many of these exercises are to be conducted in participating countries it is not always feasible to use the Facility vehicles. In Nairobi there will be occasional requirements to supplement Facility vehicles to transport large groups of students on field trips.

ACTION: AID
INFO: 113 DCM ECON ADM

UNCLASSIFIED
Classification

27 FEB 79 18:43

R 271113Z FEB 79
FM AMEMBASSY GABORONE
TO RUMVQC/AMEMBASSY NAIROBI 1821
INFO RUEHC/SECSTATE WASHDC 4458
BT
UNCLAS GABORONE 0676

BEC AVAILABLE

AIDAC

NAIROBI FOR REDSO/EA

PASS TO REGIONAL REMOTE SENSING FACILITY

E.O. 12365: N/A

SUBJECT: REQUEST FOR TRAINING IN USE OF REMOTE SENSING DATA

1. PERMSEC, MIN AGRICULTURE HAS WRITTEN TO USAID, COPY TO FALCONER AT REMOTE SENSING FACILITY, NAIROBI, REQUESTING FACILITY HOLD GENERAL COURSE AT MINISTRY FOR ABOUT 25 PEOPLE, FOLLOWED BY DISCUSSIONS OF MOST APPROPRIATE MEANS HANDLING MINISTRY'S MAPPING REQUIREMENTS.

2. WHILE MOST WORK TO BE IN GABORONE, MINISTRY MIGHT SEND ONE OR MORE STAFF TO NAIROBI.

3. COURSE TO INCLUDE THREE AG OFFICERS (LAND RESOURCES), SIX ASST. AG OFFICERS (LAND RESOURCES) FROM REGIONS, FOUR RANGE ECOLOGISTS, TWO SOIL CONSERVATION OFFICERS, THREE SOIL SURVEYORS, THREE SOIL SURVEY ASSTS, ONE FORESTER, THREE CARTOGRAPHERS/PHOTO TECHNICIANS, SELECTED STAFF FROM EXTENSION, ANIMAL HUSBANDRY, ETC.

4. BECAUSE OF URGENT TGLP AND ALDEP NEEDS, FINLAY OF MINAG DESIRES EARLY INITIATION. AFTER EXAMING NAIROBI SHORT COURSE PROGRAM, FINLAY NOTES FACILITY STAFF WILL BE FULLY OCCUPIED APRIL 2 THRU JUNE 6, SO STRONGLY PLEADS FOR COURSE IN BOTSWANA PRIOR TO APRIL 23 SO DATE CAN BE OBTAINED FOR ALDEP PRIOR SEPT.

5. USAID REQUESTS REDSO REVIEW REQUEST WITH FACILITY AND PROVIDE SHORT GENERAL COURSE IN BOTSWANA DURING FIRST HALF APRIL.

6. ADVISE.
NORLAND

UNCLASSIFIED
Classification

TELEGRAMS: DOAGRIC

REFERENCE:

A23/3/3



REPUBLIC OF BOTSWANA

BEST AVAILABLE COPY

MINISTRY OF AGRICULTURE

PRIVATE BAG 003

GABORONE

20th February, 1979

Dr. Koen,
Director, USAID, Botswana,
P.O. Box 90,
Gaborone.

*Call to REUSO
26 Feb 79 RAC
Response Action - Falconer*

Attention: L.D.O. of D.L.U.

Dear Mr. Koen,

TRAINING OF MINISTRY OF AGRICULTURE

STAFF IN THE USE OF REMOTE SENSING DATA

Following a most interesting and informative visit here on the 14th of February by Messers A. Falconer and T. Hart of the Regional Remote Sensing Facility, Nairobi, I am anxious to follow up as soon as possible suggestions made about training, and assistance in the use and processing of remote sensing data by this Ministry.

We have long been aware of the potential benefits to us of making more extensive use of such data than we have in the past, but have lacked trained staff and expert advice. Judging from what we were told during the discussions, the Regional Remote Sensing Facility at Nairobi can provide us with both, so we intend to seize the chance with both hands. I hope it will be possible to reduce administrative arrangements to a minimum, and would be grateful if you could use your good offices to this end.

Because of the low density of settlement in Botswana, the distance, and difficulty of communication, lack of staff, and sparseness of available base data, there are more than usually strong technical reasons for maximum use of air photography and satellite data in order to obtain resource and other information quickly, and in the most efficient manner in terms of staff, transport, etc. (i.e. the same information may sometimes be obtained in five minutes from remote sensing sources by one man as would take five days to obtain by ground inspection by a team with a vehicle, and the expenditure of four hundred litres of fuel).

Both the Tribal Grazing Land Policy (TGLP) and Arable Development Programmes (ALDEP) are based firmly on the foundation of resource, land use, and population (human, livestock, and wild animals) mapping. The TGLP mapping programme has been going on for nearly three years. Very good results have been achieved, and a strong, working organisation has been built up, but this programme, and the ALDEP programme to an even greater extent, require mapping which it will be very difficult to provide within the required time-frame by present methods.

Some of the many aspects where use of remote sensing data could assist and speed up the work are:

- i) Mapping of soils, vegetation, forests, water sources, erosion, grazing, overgrazing, bushfires, settlement, cultivation, land capability.
- ii) Monitoring of changes in land use, extent of vegetation types, forests, land under cultivation, erosion, etc.
- iii) Planning of settlement, land use, communications, etc.

/the

To make widest and best possible use of conventional air photography and remote sensing data we need to educate as many of our technicians as we can in the possibilities and techniques, and will also need to obtain a small amount of simple and inexpensive equipment to compliment what is already available in our photographic workshop and drawing office.

Following discussions with Messers Falconer and Hart it seems clear that the best way we could begin would be for the Regional Facility to run a general course at the Ministry for about 25 people, followed immediately by, or merging into discussions as to the most appropriate way of handling our individual mapping requirements. In most cases the work could be done here, but in a few cases one or more of our people might have to go to Nairobi.

For the course we would bring together:

- i) Three Agricultural Officers (Land Resources)
 - Six Assistant Agricultural Officers (Land Resources)
- These are posted in regions, carry out resources survey, land use planning, agricultural engineering work.

- ii) Four or more range ecologists,
- iii) Two or more soil conservation officers.
- iv) ~~Three~~ Soil Surveyors
Three Soil Survey Assistants
- v) One or more Foresters
- vi) Three or more Cartographers, photographic technicians.
- vii) A few selected staff from the Extension Service, Animal Husbandry Division, etc.

Clearly it would be best to hold the course here rather than in Nairobi.

Because of our urgent TOLF and ALDEP needs we should like to get going very soon. Looking at the short course programme, already planned by the Nairobi centre, of which we were given copies, I see that from April 23rd to 6th June the staff will be fully occupied. May I put in a strong plea for a course in Botswana before April 23rd? (The ALDEP programme needs the basic information by September).

There would be the added advantage to us that some of our people might then go on to one or more of the Nairobi courses, and also use the centres' facilities to work out some of our projects. I appreciate that at first glance it might appear difficult to mount a course before mid-April, but I believe these difficulties are more apparent than real in that the needed material is available in Nairobi, and the syllabus and content are fairly standardised.

If it could be done it would be a great help to us, and I hope you can come back to us on this very shortly.

With kind regards,

Yours sincerely,

S. Finlay
PERMANENT SECRETARY,
MIN. OF AGRICULTURE.

cc: A. Kaloener, Programme Manager
R.M.S.F., Nairobi

UNCLASSIFIED
Department of State

INCOMING TELEGRAM 16
10417
2
STION
FR
AIFC
-8
A/LS
-TR
-MGT
EMGR
INT

PAGE 01 NAIROB 04090 0616522
ACTION AID-31

9534

NAIROB 04050 0616522

INFO OCT-01 AF-10 OES-09 EB-08 /059 W
-----036934 0619052 /51

P 061206Z MAR 79
FM AVEMBASSY NAIROBI
TO SECSTATE WASHDC PRIORITY 5312

UNCLAS NAIROBI 04090

AIDAC

FROM REDSO/EA

E.O. 12065: N/A
SUBJ: REGIONAL REMOTE SENSING (698-0414)
PP REVISION

REF STATE 030991

1. SUMMARY: SUBJECT PP REVISION HAS REQUIRED MORE STAFF TIME THAN ANTICIPATED BUT NOW COMPLETED IN DRAFT. COMPLETION OF REDSO REVIEW AND TYPING EXPECTED BY MARCH 15. FINANCIAL SITUATION CRITICAL AS EXISTING FUNDS NOT ADEQUATE TO COVER NEEDED EXPENDITURES BETWEEN NOW AND TIME FY 1979 FUNDS AVAILABLE. PRELIMINARY RESPONSE TO POINTS RAISED REFTEL AND SUMMARY OF FINANCIAL SITUATION FOLLOW:

2. TAKEN IN ORDER OF POINTS RAISED WITH FOLLOWING PARAGRAPHS KEYED TO THOSE IN REFTEL THROUGH 16, SUMMARY AND RECOMMENDATIONS REVISED ACCORDING TO RECOMMENDATION AND LOP COST OF PROJECT NOW SHOWN AS DOLS 3.43 MILLION MINIMUM AND DOLS 3.81 MILLION MAXIMUM. PP WILL ALSO RECOMMEND EARLY CY 80 EVALUATION TO DETERMINE FEASIBILITY OF FUNDING DIGITAL PROCESSING EQUIPMENT AND OTHER MAXIMUM LEVEL REQUESTS. DECEMBER 79 EVALUATION PROBABLY TOO EARLY TO DISCUSS DIGITAL PROCESSING AS COLOR PHOTO LAB LIKELY IN EARLY STAGES OF OPERATION AND ITS AN OUTPUT TO PROPERLY ANALYZED.

3. DESCRIPTION OF FACILITY ACTIVITIES REWRITTEN AS REQUESTED AND STAFF ALLOCATION REVISED TO REFLECT MORE EMPHASIS ON TRAINING, TRAINING ALSO DISCUSSED RELATIVE TO ES AS SEPARATE ISSUE IN ISSUES SECTION THAT HAS BEEN ADDED.

4. HOST ORGANIZATION FURTHER ELABORATED ON AND DISCUSSED AS SEPARATE ISSUE.

5. TRICKLE DOWN THEORY AND REF. TO ERIM SYMPOSIUM DELETED.

6. AID INPUTS ADJUSTED AND OPTRONICS SYSTEM LEFT FOR EVALUATION TO DETERMINE.

7. OTHER DONORS SECTION UPDATED.

8. ECONOMIC FEASIBILITY ANTICIPATES COSTS PARTLY COVERED THROUGH REIMBURSEMENT BUT SUBSIDIZATION STILL NEEDED AT EOP. LIKELY SOURCE: REGIONAL MANAGEMENT COMMITTEE OF AFRICAC REMOTE SENSING COUNCIL.

9. TECHNICAL FEASIBILITY REVISED WITH DIGITAL EQUIPMENT DECISION LEFT FOR EVALUATION.

10. ADMINISTRATIVE FEASIBILITY SECTION EXPANDED, UPDATED AND CLARIFIED.

11. PROJECT WILL REQUIRE DH MANAGED FOR LOP BUT THIS COULD BE PART-TIME RESPONSIBILITY OF REDSO STAFF MEMBER AND NOT NECESSARILY PART OF FACILITY DIRECTOR'S RESPONSIBILITY AS AT PRESENT. EXPECT QUALIFIED COUNTERPART TO ASSUME FACILITY DIRECTORSHIP BEFORE EOP. PHOTO LAB TECHNICIAN URGENTLY NEEDED BUT MUST WAIT FY79 FUNDS.

12. COMMODITY SECTION REVISED.

13. TRAINING: FIGURES 24 PERSON MONTHS ERROR. BUDGET ALLOW FOR APPROXIMATELY 200 MONTHS OF LONG TERM TRAINING IN US AND APPROXIMATELY 250 SUBSIDIZED TRAINEES IN WORKSHOPS PLUS AT LEAST EQUAL NUMBER OF NON-SUBSIDIZED TRAINEES. OTHER COSTS: WAIVERS BEING PREPARED FOR BOTH CODES 935 AND 941 SOURCES. 935 WAIVER REQUIRED FOR NON-U.S. EQUIPMENT SUCH AS CAMERAS AND LOCAL INTERIM PHOTO PROCESSING BY EUROPEAN OWNED FIRMS. 941 WAIVER REQUIRED FOR EXPENDITURES IN OTHER EAST AFRICAN COUNTRIES.

14. FINANCIAL INPUTS ADJUSTED TO REFLECT MINIMUM/MAXIMUM LEVELS.

15. REIMBURSEMENT AND FINANCING PLANS UPDATED.

16. LOCAL PHOTO LAB OF FIELD RESEARCH SERVICE DISPOSES OF APPROXIMATELY 5 GALLONS CHEMICALS WEEKLY HEAVILY DILUTED WITH WATER. FACILITY WILL HAVE SIMILAR VOLUME WHICH NEGLIGIBLE CONSIDERING SIZE OF CITY SYSTEM.

17. FINANCIAL SITUATION NOW CRITICAL. AS OF MARCH 1 FACILITY HAS OBLIGATED DOLS 924 THOUSAND OF 986 THOUSAND AVAILABLE. ASSUMING LATE MAY OR JUNE BEFORE FY 1979 FUNDS TRANSFERRED TO PROJECT, NEW PROG SIGNED AND IMPLEMENTATION LETTERS PREPARED, ALL BUT TEN THOUSAND OF BALANCE REQUIRED FOR LOCAL SALARIES, STAFF HOUSE RENTS, SUPPLIES, IMAGE PROCESSING, VEHICLE MAINTENANCE, OBLIGATIONS ALREADY INCURRED, EXPENSES FOR SEMINARS IN KENYA, TANZANIA, BOTSWANA AND SWAZILAND, AND OTHER ESSENTIAL NEEDS. ITEMS WHICH MUST BE DELAYED UNTIL FY 79 FUNDS AVAILABLE ARE CONTINUED PHOTO LAB DEVELOPMENT, CONTRACTING FOR REPLACEMENT FOR PHOTO LAB TECHNICIAN, HIRING OF COUNTERPARTS, AND SHORT COURSES SCHEDULED TO BEGIN IN APRIL. ALSO OF MAJOR CONCERN IS RENEWAL OF SPECTRAL DATA CONTRACT. RUOFF/CONITZ LETTER OF 29 DECEMBER REQUESTS APRIL 26 SUBMISSION OF NEW PLOT.

18. IN VIEW OF ABOVE CONCERNS, REQUEST HIGHEST PRIORITY BE GIVEN TO ECPR SCHEDULING. CONITZ WILL HAND CARRY PP TO AID/W ARRIVING NO LATER THAN MARCH 19. HE WILL BE AVAILABLE FOR DISCUSSION WHILE ATTENDING PORTION OF ASP MEETING AND HOPE ECPR COULD TAKE PLACE FOLLOWING WEEK OR SHORTLY THEREAFTER.

19. PLEASE ADVISE ON PROPOSED TIMING.
LE HELLE

UNCLASSIFIED

UNCLASSIFIED
Department of State

OUTGOING
TELEGRAM

PAGE 01 OF 02 STATE 030991
ORIGIN AID-20

9936

STATE 030991

INFO OCT-81 AF-10 EB-06 OES-09 /048 R

DRAFTED BY AFR/RA: BWICKLAND:PZ
APPROVED BY AFR/RA: JDKRAUS
AFR/RA: JRUOFF
AFR/DR: JBLUMGART (DRAFT)
AFR/DP: GCAUVIN (DRAFT)
DS/ST: CWITHINGTON (DRAFT)
CM/ROD/AFR: DNEUMANN (INFO)
AFR/EA: RENEY (INFO)

AFR

-----067838 060419Z /65

P 060217Z FEB 79
FM SECSTATE WASHDC
TO AMEMBASSY NAIROBI PRIORITY

UNCLAS STATE 030991

AIOAC, NAIROBI FOR REDSO/EA, PASS TO E. D. CONROY

E. O. 12065N/A

TAGS:

SUBJECT: REGIONAL REMOTE SENSING (698-0414) PP REVIEW

REF: A) DRAFT PP (6 OCT 78) B) NAIROBI 709

1. SUMMARY: PANEL MET 16 JAN. TO CONSIDER DRAFT REDSO PP, TAKING INTO CONSIDERATION PROJECT EVALUATION CONDUCTED DEC. 1978. CONCLUSION WAS THAT REVISION WILL BE NECESSARY ALONG LINES DETAILED BELOW. PANEL GENERALLY FELT THAT THE HIGHEST PRIORITY SHOULD BE ACCORDED TO TRAINING AND LESS TO LIAISON ACTIVITIES. PP SEEMED OVERDEPENDENT ON TDY CONSULTANTS FOR TRAINING ACTIVITIES WHICH PANEL FELT COULD LARGELY BE UNDERTAKEN BY DIRECT HIRE PROJECT MANAGER AND 3 CONTRACT TECHNICIANS. AFTER REVISION, PP WILL GO BEFORE AFR EXECUTIVE COMMITTEE FOR PROJECT REVIEW (ECPRI) FOR WHICH MID-MARCH SUGGESTED AS TENTATIVE DATE. WOULD HOPE CONITZ COULD PARTICIPATE. END SUMMARY.

2. TAKEN IN ORDER PRESENTATION THE FOLLOWING POINTS WERE MADE. PROJECT SUMMARY AND RECOMMENDATIONS (PAGE 1): SHOULD EXPLAIN IN GREATER DETAIL THE RELEVANCE WHICH REMOTE SENSING TECHNIQUES AND APPLICATIONS WILL HAVE TO EAST AFRICAN DEVELOPMENT PROBLEMS AND NEEDS. SHOULD DRAW UPON FEASIBILITY ANALYSES (PP. 16-22) AND SHOULD EXPLAIN REASONS

IMPLEMENTATION DELAYS DRAWING UPON PES AND ITS RECOMMENDATIONS, AND CORRECT IMPRESSION THAT ALL TECHNICIANS CURRENTLY ON BOARD. CONCERNING STATUS PROCUREMENT REFER PARA 12 BELOW. TOTAL LOP COST TO AID SHOULD BE SHOWN AS DOLS 3.43 MILLION IN CONFORMITY WITH CP AND NOT DOLS 3.81 MILLION. REFER PARA 14 BELOW. BASIS FOR ESTIMATING TOTAL PROJECT COSTS AND OTHER DONOR INPUT DESERVE ELABORATION. STATUS PHOTOGRAPHIC LABORATORY SHOULD BE UPDATED AS WELL AS COMMENCEMENT DATE TRAINING PROGRAM. PANEL UNABLE UNDERSTAND HOW PROJECT AND ITS COMPONENT ACTIVITIES CAN BE SAID TO BE UNAFFECTED BY LATE STARTING DATE. WILL REQUIRE LOP EXTENSION AT LEAST ONE YEAR (THROUGH FY 83).

3. DESCRIPTION FACILITY ACTIVITIES (PP 4-7): PANEL FELT ENTIRE CHAPTER SHOULD BE REVISED. LIAISON ACTIVITY FIGURES TOO PROMINENT AND SHOULD NOT REQUIRE FULL MAN/YEAR OF AID STAFFING, EXTENSIVE TRAVELS. PRIMARY ROLE SHOULD BE GIVEN TO TRAINING FOLLOWED BY USER SERVICES. PAGE 5 PRESUMES DEGREE LEVEL TRAINING CAN BE ACHIEVED BY LOCAL UNIVERSITIES, AND ENVISAGES EVENTUAL TRANSFER TRAINING ACTIVITY TO LOCAL UNIVERSITIES AND NATIONAL CENTERS. IF SUCH HIGH TRAINING CAPA-

CITY ALREADY EXISTS, THEN FUNDAMENTAL PROJECT TRAINING OBJECTIVE MAY APPEAR REDUNDANT. SINCE NATIONAL REMOTE SENSING CENTERS STILL YEARS AWAY, IS IT REALISTIC TO ENVISAGE HAND-OVER IN FY 83 AS DISTINCT FROM REGIONAL FACILITY CONTINUING TRAINING FUNCTIONS? THIS SECTION CERTAINLY REQUIRES ELABORATION, AND WE WOULD ASSUME IT APPROPRIATE FOR FACILITY TO MAINTAIN TRAINING ROLE JUST AS SIMILAR FUNCTION ENVISAGED FOR MAPPING CENTER (P. 8). QUESTION OF DIGITAL PROCESSING AND RELATED SOPHISTICATED EQUIPMENT NEEDS FOR FACILITY SHOULD PERHAPS BE LEFT OPEN PENDING INDEPTH EVALUATION AND PROGRES; REPORT DEC. 1979. PP SEEMS OVERLY DEPENDENT ON TDY CONSULTANTS. HOWEVER SHORT COURSES COULD ENVISAGE EXPATRIATE TDY CONSULTANTS TO EXTENT THAT RELEVANT PERSONNEL UNAVAILABLE FROM LOCAL UNIVERSITIES, PROJECTS WITHIN REGION, AND FROM AID-FUNDED STAFF AT FACILITY. THIS CHAPTER SHOULD ALSO DEVOTE GREATER ATTENTION TO FOLLOW-UP ACTIVITIES, WHICH TIE IN WITH PROJECT SUMMARY JUSTIFICATION (P. 2), AND NEEDS TO UPDATE OUR CONCEPTION OF PRIORITY WHICH AFRICAN STATES CURRENTLY GIVE TO REMOTE SENSING AS MEANINGFUL DEVELOPMENT TOOL.

4. REGIONAL MAPPING CENTER (PP. 7-11): PANEL FELT THAT BACKGROUND AND PROJECT STRATEGY SECTION WAS WELL WRITTEN BUT THAT GOK CONSTRUCTION PLANS, THEIR RELATIONSHIP TO REGIONAL COOPERATION, AND POSSIBLE REMOTE SENSING FACILITY CONTINGENCY PLANNING DESERVED MORE ELABORATION.

5. PROJECT STRATEGY (P. 12): REFERENCE TO TRICKLE DOWN THEORY DUBIOUS VALUE AND COULD BE DELETED. IT APPEARED

INADVISABLE PLACE GREAT EMPHASIS ON INTERNATIONAL SYMPOSIUM WHEN IT SEEMS DOUBTFUL THAT NAIROBI WILL BE HOST (P. 13).

6. AID INPUTS (PP. 12-14): PANEL FELT STAFF ALLOCATED TO LIAISON (SIX/MAN/YEARS) ALTOGETHER DISPROPORTIONATE TO SCANT FOUR MAN/YEARS ACCORDED TO TRAINING. EIGHT YEARS SUGGESTED TO MORE PROPERLY REFLECT PRIMARY IMPORTANCE OF TRAINING FUNCTIONS. IN SAME CONNECTION PANEL FELT 48 TDY CONSULTANCIES FOR TRAINING SEEMED TOO HIGH, IN VIEW OF TECHNICAL STAFF ON SITE AND LOCAL TEACHING RESOURCES, SIXTEEN MAN/YEARS FOR LABORATORY SERVICES (P. 14) ALSO SEEMED EXCESSIVE AND IN ANY CASE SHOULD BE ELABORATED UPON. PANEL QUESTIONED CATEGORIC ANTICIPATION THAT ADDITIONAL MAJOR EQUIPMENT, INCLUDING OPTONICS PHOTOWRITER AND COMPUTERS, SHOULD BE DECIDED AT THIS TIME, AND FELT QUESTION SHOULD BE LEFT OPEN AS IT HAD BEEN IN ORIGINAL DS/ST PP (E.G. NEED FOR OPTONICS MAY BE LESSENED AFTER INITIATION NEW EROS EDIPS SYSTEM).

7. OTHER DONORS (P. 15): LIKELY INPUT OTHER DONORS SHOULD BE UPDATED. E.G. WE UNDERSTAND THAT FRANCE, IN ABSENCE BILATERAL COOPERATION AGREEMENT WITH KENYA, UNLIKELY ENVISAGE MORE THAN OCCASIONAL SHORT-TERM TDYS (WICKLAND/CONITZ LETTER MID-DECEMBER PERTAINS). POSITIONS OTHER POTENTIAL DONORS SHOULD BE RECONCILED WITH SITUATION DESCRIBED P. 9. ROLES IBRD, UNEP, ECA AND POSSIBLE OTHER MULTILATERAL ORGANIZATIONS (UNDP? EEC?) SHOULD BE ELABORATED.

8. ECONOMIC FEASIBILITY (P. 16): GENERALLY GOOD, HOWEVER SUBSCRIPTION AND REIMBURSEMENT MODELS CITED P. 18 NOT ALTOGETHER APPROPRIATE. ONCE UNDER WAY IT LIKELY OUGA-DOUGOU CENTER WILL DERIVE REVENUE BOTH FROM SERVICES AND SUBSCRIPTIONS, AND SERVICES TO NON-MEMBERS NOT NECESSARILY PRECLUDED. EROS DATA CENTER HEAVILY SUBSIDIZED BY USG AND USER FEES ONLY COVER REPRODUCTION COSTS.

9. TECHNICAL FEASIBILITY (PP. 19-20): CONCERNING SOPHISTICATED EQUIPMENT, SEE PARA SIX ABOVE.

UNCLASSIFIED

+14

BEST AVAILABLE COPY

10. NON-ADMINISTRATIVE SUPPORT STAFF: ...

HIGH IN FINAL FUNDING YEAR. MISCELLANEOUS EXPENDITURE ALSO SEEMS EXCESSIVE FINAL YEAR.

CATEGORIC ASSURANCE THAT NO ADMINISTRATIVE PROBLEMS LIKE- LY TO ARISE SEEM UNJUSTIFIED IN LIGHT DIFFICULTIES SO FAR ENCOUNTERED...

15. REIMBURSEMENT (P. 20): WHILE DRS PANEL, SEEMS HIGHLY DETAILED FACILITY COULD BE SELF-SUPPORTING BY FY 83.

11. FINANCIAL ANALYSIS: PANEL RECOMMENDS ADDITIONAL JUSTIFICATION FOR NEED OF DIRECT HIRE PROJECT MANAGER OVER ENTIRE LOP (P. 23)...

16. ENVIRONMENTAL ANALYSIS (P. 32): WHILE NOT QUESTIONING ENVIRONMENTAL EFFECT, FEEL EXPLANATION SHOULD COVER DISPOSAL PHOTOLAB CHEMICAL WASTE.

12. COMMODITIES (P. 26): STATUS PROCUREMENT SHOULD MORE CLEARLY DISTINGUISH BETWEEN 931 FUNDING AND ANY FURTHER PROCUREMENT TO BE UNDERTAKEN AGAINST 656 FUNDING.

17. ACTION REQUESTED: ON BASIS ABOVE COMMENTS, WOULD APPRECIATE REDSO RE-EXAMINING PP AND ANNEXES AND MAKING REVISIONS WHEREEVER NECESSARY TO AMEND AND OTHERWISE UP- DATE DOCUMENTS.

13. TRAINING: 24 PERSON MONTHS SEEMS VERY LOW TO ACCOM- PLISH ALL THE DIFFERENT TYPES OF TRAINING DESCRIBED SAME PARA (P. 27).

13. OTHER COSTS: ASSUME CODE 935 WAIVER REQUESTED REF B SUPERCEDES CODE 941 WAIVER ENVISAGED P. 27. PANEL QUES- TIONED BOTH DURATION AND AMOUNT PHOTOLABORATORY SERVICES...

14. AID FINANCIAL INPUTS: ANNEX D SHOWS TOO MUCH OBLIGA- TION BOTH FY 80 AND 81. PANEL FAVORS SPREADING OBLIGATIONS THROUGH FY 82 BUT FY 80 SHOULD BE AMENDED TO REFLECT OYB FIGURE DOLS 540,000.

memorandum

DATE: March 28, 1979

REPLY TO
ATTN OF: AFR/RA: E. Dennis Conroy *E. Dennis Conroy*

SUBJECT: Issues Paper for Regional Remote Sensing (East Africa),
Project No. 698-0414

TO: AFR/DR: John Koehring

This project was conceived of by DS/ST and funded during its initial year (through FY 1978) as a component of Project No. 931-1166 (Remote Sensing for Resource Assessment and Management). Responsibility for the Nairobi Center was transferred to AFR/RA at the beginning of FY 1979. In anticipation of the transfer, a project evaluation was jointly undertaken by AFR/RA and DS/ST, in collaboration with REDSO/EA, early in December 1978. It was also felt that the original DS/ST project paper should be re-examined in the light of the first year's experience. A draft PP was accordingly submitted by REDSO/EA and was reviewed by representatives of AFR/DR, AFR/DP, DS/ST, CM/ROD/AFR, and my office on January 16, 1979.

Issue (1) Institutional Arrangements: The regional remote sensing facility headed by an AID direct-hire project manager/director, functions as an integral but semi-autonomous part of an African inter-governmental institution, the Regional Center for Services in Surveying and Mapping (hereafter referred to as the Mapping Center). This has proven to be a mixed blessing. On the one hand it has assured a reasonable amount of office space and administrative support. On the other hand, the remote sensing facility seems to be the only active element of the Mapping Center. African and non-African multi-donor support for the Mapping Center has considerably diminished, primarily, it is thought, through lack of confidence in the Center's present African direction and management. It is conceivable that financial support for the Center may further be reduced during the next two years, placing in jeopardy the mapping support anticipated for the regional remote sensing facility. It would also require establishment of a new sub-regional organization for the remote sensing facility.

*What
rec...*

Issue (2) Assuming the regional center concept was developed to satisfy a more complex set of needs than can be satisfied by training courses, does the Project Paper show the proper blend of training with user services? For PP comments see p. 3 of the Project Summary and Annex K (Implementation Schedule). This issue was raised in the December 1978 PES (copy attached) which stressed the need for the Facility to undertake training courses as quickly as practicable.



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-78)
GSA FPMR (41 CFR) 101-11.6
5010-112

- Issue (3) Recurrent Costs The recent costs of the Center's Training and Outreach programs are scheduled to be running at \$300,000 *by the end of FY 1982, when AID funding expires. If the Mapping Center is not in a position to meet these costs, will the Kenyan government do so?
- Issue (4) Relationship to Environmental Programs How can the Center, once it is fully operational, effectively relate its work to national and regional environmental programs including UNEP's desertification monitoring programs? Should the Center seek institutional ties with UNEP?
- Issue (5) Overlapping Responsibilities of Project Manager: The project manager is both a member of the REDSO/EA staff with remote sensing responsibilities for countries within REDSO's area of responsibility, and director of the regional remote sensing facility. The need exists for close coordination not only between the facility and REDSO, but also between REDSO and the USAID Mission to Kenya (as regards the manager/director's Kenya assignments). Possible conflicts of interest have been safeguarded by the terms of the agreement between REDSO and the Mapping Center, whereby the facility is not required to assist countries (e.g. Uganda) with which the United States does not have diplomatic relations. With respect to the facility's involvement in sensitive areas of Kenya (e.g. northern frontier with Somalia), however, the situation is more delicate and currently requires the clearance of the USAID Mission. Are such safeguards satisfactory or even desirable? Should the agreement between REDSO and the Mapping Center be amended to reflect restrictions on use of U.S. personnel working at the Facility?
- Issue (6) Kenyan Request for Pre-feasibility Study for Constructing a Ground Station. For some time the Kenyan government has expressed interest in having a LANDSAT receiving station and data processing facility located in that country which would complement that proposed for the Regional Center in Upper Volta and together provide coverage for much of Africa. Quite recently, the AID Mission received a written request from the Ministry of Natural Resources for assistance in undertaking a pre-feasibility study for such a station. How should the Mission respond to such a request? If the response is positive, it will tend to encourage the Kenyans to pursue the objective of investing in a ground station and will probably generate at some point a request for AID assistance (technical and/or financial) in support of such a project. If the response is negative the Kenyans might feel that the U.S. wishes to stand aloof from broadening the existing project to include a ground station. Although, the ground station issue is not included in the present PP, it has such significant ramifications for the future of the project that it is raised here.
- Issue (7) Implementation Delays: Owing to a variety of reasons, the project is at least one year behind schedule. At this time the project is lacking one of three contract technicians, and many items of equipment are still under order. This will necessitate extending LOP funding through FY 1982 one year beyond the time estimated in the FY 79 CP) and increase total LOP costs to \$3.43 million (\$950,000 more than anticipated in the CP).

*Does not include expatriate technicians, equipment acquisitions or aerial photography

Attachments:

- PES dated December 20, 1978
- State 30991 dated February 6, 1979
- Nairobi 4090 dated March 6, 1979

Clearance:

AFR/RA:JRuoff(draft)
REDSO/EA:MConitz(draft)
AFR/DR:JBlumgart_____

Info:

AA/AFR:GButcher
AA/AFR:GCobb
DA/AFR:WHNorth
AFR/DP:JGovan ✓
AFR/DP:GCauvin
AFR/DR:LHeilman
AFR/DR/ARD:DGates
AFR/EA:HJohnson
AFR/EA:REney
OC/AFR:EDragon
JM/ROD/AFR:JAnderson
DS/ST:CPaul

UNITED STATES GEOLOGICAL SURVEY
 REGIONAL REMOTE SENSING FACILITY
 915 CO-523-00-09 91

64-0674

Project Title: 72-1191021
 Project Start: 12/11/80
 Project End: 12/31/80

Task	Priority	Start Date	End Date	Personnel	Estimated Cost	Actual Cost	Remarks
1.0000	1	12/11/80	12/31/80	1 person	50,000		

The primary objective of the purpose of this P/O/T is to provide funds for the purchase of three photogram contracts under DECS-PASA No. IC/AR 1165-2-78 as follows: (1) CARTOGRAPHIC PHOTOGRAMMETRY COURSE - Late 1979 (2) Specialist to be determined for land use mapping and analysis course - 1980 (3) Specialist to be determined for Geology short courses in Kenya and Tanzania - 1980. Expenses estimated as follows: Travel - \$2,500-\$7,500
 Salary - 24 weeks @ \$700 = \$16,800
 Per Diem - 64 days @ \$50 = \$3,200
 Materials = \$11,420
 Overhead - 60% (salary) = \$10,080
 \$50,000

BEST AVAILABLE DOCUMENT

DECSO/EA: *[Signature]*

DECSO/EA: *[Signature]*
 Name: Grever Robinson

DECSO/EA: *[Signature]*
 Name: Tom G. Dehart

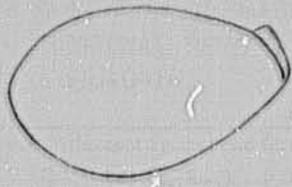
DECSO/EA: *[Signature]*
 Name: Alexander H. Love

DECSO/EA: *[Signature]*

DECSO/EA: *[Signature]*
 Name: Alexander H. Love

9/4/79

Approved by General Regional Center Director, BEDSO/EA
 for Special Mapping



BEST AVAILABLE DOCUMENT

RESTRICTED DOCUMENT

1. Title: [Illegible]

2. Author: [Illegible]

3. Date: [Illegible]

4. Summary: [Illegible]

5. Remarks: [Illegible]

6. Distribution: [Illegible]

7. Classification: [Illegible]

8. Remarks: [Illegible]

9. Remarks: [Illegible]

10. Remarks: [Illegible]

11. Remarks: [Illegible]

12. Remarks: [Illegible]

13. Remarks: [Illegible]

14. Remarks: [Illegible]

15. Remarks: [Illegible]

16. Remarks: [Illegible]

17. Remarks: [Illegible]

18. Remarks: [Illegible]

19. Remarks: [Illegible]

20. Remarks: [Illegible]

21. Remarks: [Illegible]

22. Remarks: [Illegible]

23. Remarks: [Illegible]

24. Remarks: [Illegible]

25. Remarks: [Illegible]

26. Remarks: [Illegible]

27. Remarks: [Illegible]

28. Remarks: [Illegible]

29. Remarks: [Illegible]

30. Remarks: [Illegible]

31. Remarks: [Illegible]

32. Remarks: [Illegible]

33. Remarks: [Illegible]

34. Remarks: [Illegible]

35. Remarks: [Illegible]

36. Remarks: [Illegible]

37. Remarks: [Illegible]

38. Remarks: [Illegible]

39. Remarks: [Illegible]

40. Remarks: [Illegible]

41. Remarks: [Illegible]

42. Remarks: [Illegible]

43. Remarks: [Illegible]

44. Remarks: [Illegible]

45. Remarks: [Illegible]

46. Remarks: [Illegible]

47. Remarks: [Illegible]

48. Remarks: [Illegible]

49. Remarks: [Illegible]

50. Remarks: [Illegible]

51. Remarks: [Illegible]

52. Remarks: [Illegible]

53. Remarks: [Illegible]

54. Remarks: [Illegible]

55. Remarks: [Illegible]

56. Remarks: [Illegible]

57. Remarks: [Illegible]

58. Remarks: [Illegible]

59. Remarks: [Illegible]

60. Remarks: [Illegible]

61. Remarks: [Illegible]

62. Remarks: [Illegible]

63. Remarks: [Illegible]

64. Remarks: [Illegible]

65. Remarks: [Illegible]

66. Remarks: [Illegible]

67. Remarks: [Illegible]

68. Remarks: [Illegible]

69. Remarks: [Illegible]

70. Remarks: [Illegible]

71. Remarks: [Illegible]

72. Remarks: [Illegible]

73. Remarks: [Illegible]

74. Remarks: [Illegible]

75. Remarks: [Illegible]

76. Remarks: [Illegible]

77. Remarks: [Illegible]

78. Remarks: [Illegible]

79. Remarks: [Illegible]

80. Remarks: [Illegible]

81. Remarks: [Illegible]

82. Remarks: [Illegible]

83. Remarks: [Illegible]

84. Remarks: [Illegible]

85. Remarks: [Illegible]

86. Remarks: [Illegible]

87. Remarks: [Illegible]

88. Remarks: [Illegible]

89. Remarks: [Illegible]

90. Remarks: [Illegible]

91. Remarks: [Illegible]

92. Remarks: [Illegible]

93. Remarks: [Illegible]

94. Remarks: [Illegible]

95. Remarks: [Illegible]

96. Remarks: [Illegible]

97. Remarks: [Illegible]

98. Remarks: [Illegible]

99. Remarks: [Illegible]

100. Remarks: [Illegible]

20. [Faint header text]

...of the [faint] specialist will be covered in [faint] report.

CONFIDENTIAL

21. [Faint header text]

...[faint] [faint] [faint]

22. [Faint header text]

...[faint] [faint] [faint]

[Faint signature or name]

Thomas Debut
Project Manager
Marshall Center, Director
Regional Remote Sensing [faint]

FIGURE

Project Title

REGIONAL REMOTE SENSING 63-0-107-9839

CLASSIFICATION

22. Provision for Logistic Support

A. From the Home Country (NY) (in convertible currency or other foreign currency) (in US dollars) (in US dollars) (in US dollars)

In Kind Supplied By

From Local Currency Supplied By

- (1) Office Space
- (2) Office Equipment
- (3) Rental of Office
- (4) Furniture
- (5) Household Expenses (Travel, Telephone)
- (6) Transportation in Home Country
- (7) Insurance (Medical)
- (8) Technical Equipment and Supplies
- (9)
- (10)
- (11)
- (12)
- (13)
- (14)
- (15)

	US\$	Cooperating Country	US\$	Cooperating Country
(1)				
(2)				
(3)				
(4)				
(5)				
(6)				
(7)				
(8)				
(9)				
(10)				
(11)				
(12)				
(13)				
(14)				
(15)				

B. Additional Facilities Available From Other Sources

CONFIDENTIAL DOCUMENT

BEST AVAILABLE DOCUMENT

Photographic and Reproduction Services Manager

DESCRIPTION

The location of this position will be at the headquarters of the Agency for International Development sponsored Regional Remote Sensing Facility in Nairobi, Kenya. The Facility was developed to support training and technical assistance in the use of remote sensing, particularly Landsat imagery in East Africa. To support these activities the Facility is developing a remote sensing analysis laboratory, user reference center for maps and satellite imagery, photo laboratories and reproduction section. The facility plans to develop complete photo processing capability for both black and white and color reproductions. Photo processing is necessary to provide the specialized products required for the training courses, to provide users throughout the region with high-quality products, and to support experimental and pilot activities carried out by the Facility. The reproduction section will support a similar range of needs and will employ chromalin, offset printing and other appropriate processes. The Facility will prepare, print and distribute illustrated instruction manuals, research reports, Landsat data catalogs, user guides, image maps, newsletters and other materials which will utilize both the Facility's photo production and training capability.

Duties and Responsibilities

Responsible for the development and operation. The incumbent will develop, operate and manage the photographic laboratory and printing facilities required for the project. Initially he will be responsible for the installation and testing of all equipment required for these operations, he will prepare requisitions for supplemental equipment and supply needs. When these facilities are in operation he will supervise their operation, insure proper maintenance and keep adequate supplies on hand. He will be directly responsible for control of the quality of the products produced.

CONTINUATION SHEET

FORM SYMBOL

TITLE OF FORM

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

Filled Blank PAGE 7 OF 9 PAGES

1. Reporting Country REGIONAL 2. Doc. Code No. PIOT/T 625-0414-3-9000

3. Effective Date 10/1/79 4. Original OR No. 1

5. Project/Activity No. and Title REGIONAL REMOTE SENSING 698-0414

Indicate block numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

Training. He will train and supervise counterparts who will carry out the day to day operation of the laboratories. He will also supervise on-the-job training as required. He will participate with other staff members in the regular training courses and seminars sponsored by the Facility. He will demonstrate laboratory techniques including the preparation of Landsat color composites and mosaics.

Reporting. The Photographic and Reproduction Service Manager will report to the Program Manager but he will have sufficient experience and maturity to work independently.

BEST AVAILABLE DOCUMENT

DEPARTMENT OF STATE
 AGENCY FOR
 INTERNATIONAL DEVELOPMENT

 Variation Assistance

PAGE 6 OF 9 PAGES

CONTRIBUTION
SHEET1. Cooperating Country
REGIONAL2. Catalog
PIO/T-523-0414-1-90004

FORM SYMBOL

TITLE OF FORM

3. Effective Date
10/1/794. Original Amendment
OR No. 1

5. Project/Activity No. and Title

REGIONAL REMOTE SENSING
698-0414Indicate block
numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

SPECIAL REQUIREMENTS

The specialist shall have the following qualifications:

- (1) A recent Bachelor of Science degree in photo science, cartography or related area or appropriate experience and training. His background have included sufficient exposure to the theory and fundamentals of photographic and cartographic processes so that the incumbent can assist with the design of training courses and experimental projects that are appropriate for the East African region.
- (2) Practical experience in and a knowledge of photo processing for cartographic purposes, photo chemical processes including color, aerial photographic requirements and quality control.
- (3) The ability to design and write specifications for photographic laboratories to support cartography-remote sensing and resource analysis.
- (4) Familiarity with the Landsat program including a knowledge of color compositing techniques, photo mosaicing, and the preparation of photo-maps.
- (5) An understanding and appreciation of government administrative processes including AID's development assistance program. He must be responsive to the needs and priorities of the recipients of the technical assistance and be willing to adjust to the conditions of the work. Some overseas experience and exposure to AID's development programs would be helpful.
- (6) Sufficient competence, experience and maturity to deal with senior policy level personnel in developing countries and the ability to work independently with minimal supervision.

BEST AVAILABLE DOCUMENT

P

CONTINUATION SHEET	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	<input type="checkbox"/> Mission	<input checked="" type="checkbox"/> Project	Project No.
		1. Description Country REGIONAL		2. Budget No. 107-623-0414-3-90004
		3. Effective Date 10/1/78		4. Period of Performance October 1978 -
FORM SYMBOL	TITLE OF FORM	2. Project/Activity No. and Title REGIONAL REMOTE SENSING 698-0414		

Indicate block numbers. Use this form to complete the information required in any block of a P-O or FAA form.

Budget Estimate

	<u>First Year</u>
Salary per annum	26,000
Overhead @ 69%	17,910
Travel and per diem	1,500
Transportation and Storage	4,000
Passports, visas, shots, misc.	500
Subtotal	50,910
G & A @ 10%	9,488
Subtotal	59,428
Fixed Fee @ 8 1/3%	5,051
Total	64,479

Funds for travel to and from the post for specialist and family, and storage shipment of household effects are included in the budget. Furnished housing, utilities and guard service will be provided from locally available project funds in accordance with standards approved for AID direct hire personnel. Travel within East Africa will also be covered with local project funds.

BEST AVAILABLE DOCUMENT