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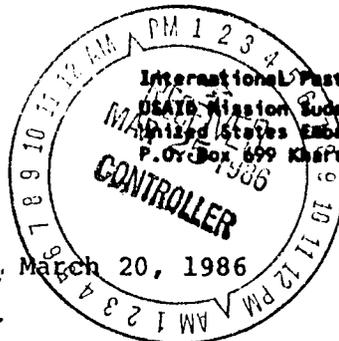
United States of America
AGENCY FOR INTERNATIONAL DEVELOPMENT

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United States Agency for International Development
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H.E. Mr. Siddig Abdin
Minister of Agriculture and Natural
Resources
Khartoum

6580076

Appropriation: 72-115/61035
BPC: JFD5-86-29650-HG41
Amount: \$1,160,000

Dear Mr. Minister

Subject: Grant for SERISS Remote Sensing
(650-E-609)

I am pleased to inform you that, pursuant to section 491 of the Foreign Assistance Act of 1961, as amended, the Government of the United States of America, acting through the Agency for International Development (A.I.D.), hereby grants to the Government of the Republic of Sudan (hereinafter referred to as "The Grantee") the sum of One Million One Hundred Sixty Thousand United States Dollars (US\$1,160,000). This Grant is to assist the Grantee in meeting the foreign exchange costs of expanding the use of remote sensing technology to improve and refine its early warning system for total crop production estimates. The Grant will also aid in identification of deficit production or nutritionally stressed areas. This Grant is subject to the availability of funds to A.I.D. for this purpose and to the mutual agreement of the parties.

This grant is effective as of the date of this letter and, unless otherwise agreed by A.I.D., is applicable to commitments made by the Grantee within the scope of his agreement as of the date of this letter through August 31, 1987. Funds uncommitted at the expiration of this period, or any extension thereof, may be re-programmed as mutually agreed to by both parties for purposes of emergency drought relief.

It is understood that financial records, including documentation to support entries on accounting records and to substantiate charges to this grant, shall be maintained by the Grantee in accordance with the Grantee's usual accounting procedures, which shall follow generally accepted accounting

practices. All such financial records shall be maintained for at least 3 years after final disbursement of funds under this grant. The Grantee agrees to make available to A.I.D. for the Comptroller General of the United States, all records and documents which support expenditures under the Grant.

Funds provided under this grant shall be available to finance the foreign exchange costs of procurement of remote sensing data (satellite imagery, computer tapes, etc.) and complementary aerial photography, as well as limited commodities and technical assistance directly related to support the GOS ongoing capacity to analyze and interpret remote sensing data and finance very limited short-term training. All these goods and services are being financed for the Grantee to continue its efforts to identify early drought warning signals and thereby take steps to mitigate the nutritional impacts on affected populations.

The Grantee agrees that all commodities for which the costs of distribution are reimbursed under this agreement shall be admitted duty free, exempt from all duties and taxes. Therefore, no funds provided under this agreement will be used to pay the costs of taxes or duties of any kind.

It is understood that A.I.D. will act as an agent on behalf of the Grantee. The Grantee may obtain disbursement of funds under this Grant for the foreign exchange costs of goods and services required for the project in accordance with the terms of this agreement upon request by the Grantee.

Local currency needed in support of this activity and illustratively outlined in Annex A to this Agreement shall be made available from the USAID Trust Account.

The GOS agrees to provide access and assistance to the United States Government (USG) and its representatives to inspect records and operations pertaining to the receipt, storage, distribution and use of the commodities to be distributed under the agreement including the authority to visit project sites as deemed necessary by the USG or its representatives. Said representatives will include food monitors contracted to perform this task by the USG.

As with Development Assistance Projects under the MOA, the Grantee agrees to provide physical and financial progress reports of project implementation.

Unless otherwise agreed by A.I.D., none of the funds provided under this grant shall be used to reimburse the costs of distribution services procured from suppliers having their nationality in countries not included in A.I.D. Geographic Code 935.

If the use of grant funds results in the accrual of interest to the Grantee or to any other person to whom the Grantee makes such funds available in carrying out the purposes of this grant, the Grantee shall refund to A.I.D. any amount of interest earned.

To assist in the implementation of this agreement, A.I.D. may, from time to time, issue implementation letters that will furnish additional information about matters stated in this agreement. The parties may also use jointly agreed-upon implementation letters to confirm and record their mutual understanding on aspects of implementation of this agreement.

This agreement, in whole or in part, may be terminated by either party at any time upon 60 days written notice. Termination of this agreement shall terminate any obligations of the parties except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the termination of the agreement. This agreement may be revised only by the written agreement of the parties hereto.

Please indicate your acceptance of the terms and conditions of this grant by signing the original and copies of this letter in the space provided below and returning the original and copies to the undersigned. The remaining copies should be retained for your files.

THE UNITED STATES OF AMERICA

BY: William A. ...
Mission Director (Acting)
TITLE: ...
DATE: 10/2/86

Accepted:

THE REPUBLIC OF SUDAN

BY: Samuel ...
The Minister of Agriculture
TITLE: Office Acting Director of Agriculture
DATE: 20-2-1986
Natural Resources

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Attachment A

SERISS REMOTE SENSING

I. Program Description

A. Background

In 1985, the drought affected approximately 11 million Sudanese. In response, the Government of Sudan (GOS) initiated a massive relief effort with assistance from the international community, which provided food and health services to millions. USAID provided around 550,00 MT of food which was distributed to some 7.5 million people. The logistics of these programs strained Sudan's infrastructure and created a significant management challenge for international donors. This recent experience emphasized the importance of establishing an early warning system. Such a system will allow the GOS and donors to estimate any production deficits, assess food availability and nutritional/health status in time to avoid future food crises which may result in widespread malnutrition and, possibly, starvation.

Throughout drought-affected areas, various nutrition, health and agricultural production surveys conducted in 1985 have provided critical information to the GOS, USAID and international agencies for their planning efforts. Such surveys, and the information generated from them, can indicate expanding or worsening patterns of malnutrition and provide guidance for the programming and distribution of U.S. grain, life saving drugs, health services, etc. In order to plan for pre-positioning of food for 1986, the GOS and USAID supported two complementary assessments of the area planted and estimated yields between September and December 1985.

The MinAg's Planning and Agricultural Economics Administration (PAEA) proposed and initiated a major expansion over their past-efforts to survey and estimate crop production. For the first time, with support and assistance from the Agricultural Planning and Statistics Project (APS), the PAEA undertook a firsthand survey of primary data in the field rather than relying on reports from secondary sources (SGB, MFC, etc.). In addition USAID introduced the use of high resolution satellite imagery coupled with the ground truthing surveys by the MOA, to provide estimates of total area cropped and yields. As a result, food deficit areas had already been identified by the end of the growing season and prior to harvests. The statistics generated by these surveys were critical to the programming and planning of 1986 relief efforts for food deficit areas. The reports indicated that, overall, Sudan would have a record grain harvest, but that local crop failures would create "pockets of famine-like conditions for approximately 3.5 million people in 1986. These two "early warning" data gathering activities provided a check for each other, but as we look ahead we wish to integrate the use of satellite imagery and ground truthing surveys directly into the MinAg's annual program for estimating crop production.

Now that the MOH, RRC and other GOS entities have realized the benefit of having the MinAg and others produce accurate and timely crop production estimates (which allow the MOH to assess food availability and project nutritional status), the GOS will be relying even more heavily on the MinAg for the collection and release of this information. In order to ensure the MinAg is prepared to produce such reliable statistics in a timely manner, MOH grant funds will be provided to the MinAg to facilitate the blending of remote sensing technology with the MinAg expanded field survey work on crop production.

In January, 1986, a Memorandum of Understanding was signed between USAID and the Government of Sudan to initiate the Sudan Emergency and Recovery Information and Surveillance System (SERISS) to facilitate information collection, analysis and dissemination.

The initial activities of SERISS have been aimed at strengthening survey skills and expanding the capacity for data analysis relative to nutritional status, food availability and access to food in the drought belt. This agreement is designed to strengthen the capability of the PAEA within the MinAg to utilize remote sensing imagery and analysis in preparing local and national estimates of cropped area, yields and other essential data for facilitating drought recovery and emergency programs for the GOS generally, but for the Relief and Rehabilitation Committee, the Ministry of Health and International donors/PVOs especially.

B. Objectives:

The objectives of the Sudan Emergency and Recovery Information and Surveillance System are to provide the GOS, primarily the Commission on Relief and Rehabilitation and the Ministries of Health and Agriculture, with accurate, reliable and timely information to evaluate: levels of malnutrition; the availability and access to basic foods; selected operational parameters for implementing relief and recovery programs; and national strategies for improving personal nutritional status and national nutritional self-sufficiency. The amendment will provide resources for strengthening the PAEA, through cooperation with the National Remote Sensing Center (NRSC), to provide critical information on cropped area and vegetation, estimated crop yields, population and health dynamics and various environmental stress data for monitoring and planning.

This remote sensing activity will primarily be oriented towards the major agricultural production areas in the Sudan and will be directed toward producing the following specific outputs:

- a report on estimated cropped area and yields and area of other vegetative cover by 15 October, utilizing satellite imagery (taken mid-September), ground truthing and computer assisted analysis.

- final crop production estimates and forestry/biomass projections by December 31, 1986 incorporating additional information generated through continued refinements in ground-truthing and further analysis of subsequent satellite imagery.
- improved collaboration between the MOA, the NRSC and various regional and international sources of the technology and technical assistance on how to use that technology most effectively.
- enhanced capacity at the National Remote Sensing Center to specify, procure and analyze satellite imagery for the generation of data for a variety of end uses.
- an expanded data base and awareness of the potential uses for satellite imagery in estimating crop production.
- an expectation from the MOH, RRC and various other GOS entities of the sorts of information that can be generated and should be disseminated regularly in support of existing and planned programs.

Scope of Work and Description of Activities

1. Coverage: Resources are to be used primarily for data collection and analysis in the major agricultural production areas of the Sudan. Data on the irrigated, mechanized, and traditional agricultural sectors are to be integrated into this activity.

2. Methodology of Data Collection: Considerable experience has been gained through survey work conducted in 1985. The grant funds will be used to build upon this experience in the design and implementation of an integrated (landsat imagery and field surveys) effort to improve crop production estimation.

A) Collating/Accessing: The MinAg bears responsibility for ensuring the immediate release, to MOH, CRR and other relevant GOS agencies, of the data collected and analyzed and the interpretation attached to it.

B) Procurement (T.A. and Commodities) and Processing: Through the APS project, T.A. will be identified immediately to come to Sudan and work with the PAEA and NRSC. This specialist will, 1) recommend how much analysis can be done through the NRSC (to strengthen its future capacity to serve the MinAg, MOH, etc.), 2) identify what level of support would be required from outside sources and which source, such

as the Regional Remote Sensing Facility in Nairobi, ERIM, NOAA, EROS, etc. is most appropriate and 3) specify and prepare documents necessary to procure the imagery, equipment and support services required by NRSC to perform the proposed work. (Note: USAID will finance the procurement of these goods and services for the NRSC on behalf of the MinAg. This arrangement is most necessary to ensure the widest possible use of the imagery and analytical capacity to be procured. Recent guidance from AID/Washington indicates that proprietary rights to data generated, computer tapes, are vested exclusively with the original customer and may not legally be duplicated or distributed; this prohibition does not apply to positives and hard copies.) Upon review and concurrence from the MinAg and USAID, USAID will procure the materials/services specified by the consultant.

Ground Truthing:

The MOA will field survey teams to sample each major agricultural production area for cropped area, biomass production and to estimate yields. Survey members will be trained regarding the use of remote sensing technology, its applications and limitations.

Program Management Responsibilities:

The MOA will be the MOH's implementing agent for the SERISS project.

Project management will be the responsibility of the Director General of the MinAg's Planning and Agricultural Economics Administration in coordination with USAID's Office of Agriculture and the APS project.

Memorandums of Understanding will be developed for cooperative activities between the MOH, MinAg, University of Khartoum and NRSC which will specify goals, verifiable objectives, activities, budget and workplans.

The MOA will assign a full time coordinator and sufficient personnel to facilitate the management of this activity. Ground truthing, data analysis and other technical personnel will be assigned on an as needed basis.

A Steering Committee, under the chairmanship of the designee of the Director General of the PAEA will coordinate the activities. Membership on the committee will include a representative of the MOFEP, NRSC, University of Khartoum's Institute of Environmental Studies, Soil Survey Administration (Wad Medani) and USAID.

The NRSC will assign one full time person to provide technical assistance and to interact and coordinate with the MinAg's coordinator.

Illustrative Foreign Exchange Budget Provided Under This Grant

Category	<u>U.S. Dollars</u>
- Technical Assistance	\$ 84,000
- Landsat Imagery	\$ 800,000
- Aerial Photography	\$ 60,000
- Equipment (Zoom transfer scope, overhead projector, color additive viewer, remote imagery microprocessor, photomechanical equipment and materials, contography materials and equipment, etc.)	\$ 150,000
- Training	\$ 60,000
- Contingency and others	<u>\$ 6,000</u>
	\$1,160,000

Illustrative Local Currency Budget Provided by AID Trust Account

	<u>Pounds</u>
- Personnel Support/Local TA	Ls 75,000
- Survey Materials/Equipment	Ls 25,000
- Field Transport Air and Ground	Ls 28,000
- Training National and Regional	Ls 8,000
- Maintenance Vehicles	Ls 40,000
- Documents/Reports and Data Processing	Ls 46,000
- Renovations/Office Equipment	Ls 70,000
- Others	<u>Ls 12,000</u>
	Ls 304,000 =====

Clearance:

AD/PO, TFCornell

8/16 3/20/86

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HJamshed

HNP, JSarn

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AGR, LMartella/KMiller

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PDI: VLDickson-Horton

VLD

FUND	AVAILABLE
DATE: <i>3/20/86</i>	BY: <i>WJ</i>