

PD-AAT-874
46145

MONTHLY REPORT

12 June 19~~86~~ - 11 July 1986

Contract Number: 635-0203-C-00-6039-00

Project Number: 635-0203

Project Title: Gambia Cartographic Studies

Remote Sensing Institute
South Dakota State University
Brookings, South Dakota 57007-0199

July 12, 1986

Gray Tappan, Team Leader

Janet Gritzner, Project Coordinator

Gene Eulert, Rangeland Specialist, Marc Staljanssens, Soils
Scientist, Jim Wakeman, Land Surveyor.

Gambia Cartographic Services. Contract 635-0203-C-00-6039-00

Ralph L. Conley, Agricultural Development Officer

Monthly Report
12 June, 1986 - 11 July, 1986

This report is submitted as the second of four monthly reports in compliance with Section F subsection 6-a of the contract agreement between the Remote Sensing Institute, South Dakota State University and the U.S. Agency for International Development. The monthly reports cover a period beginning on the 12th of every month and will be submitted as per Section F 6-a within 7 days following the end of the period being covered. This report is divided into four parts:

Summary of Activities (June 12 to July 11, 1986); Accomplishments;
Problems Encountered; and Recommendations

Summary of Activities
12 June - 11 July, 1986

Established guidelines and general specifications for the 1:125,000 scale thematic maps to be prepared by the Project. This information was conveyed to Mr. T. Coblenz, Consultant Cartographer.

Received a second office at the Ministry of Agriculture, Mixed Farming project at Abuko, on June 1986. Also received access to two other offices formerly occupied by personnel of the Mixed Farming Project.

Gained access to key documents listed as available data for the contractor on page C3 of the contract. These include the 526 sheets of forestry inventory maps of The Gambia at 1:1000 scale, and the 1:25000 panchromatic and color infrared photographs of The Gambia flown in 1980. These documents are being consulted at their storage location in the Abuko offices.

We were assigned a Gambian counterpart: Mr. Omar Njai, Mixed Farming Project, on July 1. Mr. Njai assisted the team in preparing photo flightlines for interpretation.

Miscellaneous office supplies were purchased in Banjul to facilitate interpretation.

Aerial photographic interpretation, the main activity through the month, was initiated June 19 after the photos were organized. This activity consists of three simultaneous efforts:

a) Preparation of the updated planimetric basemaps.

The planimetric update was substantially completed. Lacking was the areas in which photography was missing. The names update was completed. Names were taken from the MarkHurd othophoto maps. As per recommendation from the Department of surveys the names were finally checked against the Census Maps provided by the Department of Surveys. Considerable difference was discovered. The census maps were the final authority. Arrangements were made to obtain summary information on well location. Two brief field trips were taken in the Banjul area.

b) Preparation of the soils maps.

Three* sources of soils data have been consulted and the available soils information was compiled in about two days. Another two days were devoted to the design of a provisional legend based on the soils association map at a 1:125,000 scale presented with the Land Resource Study No. 22.

A quick study (one day) of sample frames selected throughout the country was then conducted in order to verify the validity of the provisional legend. Interpretation was initiated on June 19 and is by now completed for about 80% of the frames. The remaining 20% should be completed before leaving the Gambia. The interpretation is conducted on the basis of the 1:125,000 scale for map starting with the runs of photographs covering sheet #4. The remaining frames to be interpreted thus cover the southern part of sheet #1.

The provisional legend appeared to fit quite well and only a few minor corrections were to be made in the course of the interpretation. It is expected that consolidation of the legend and finalization of the line work will be done together with transferring and drafting at final scales. This complete operation should be completed before the end of August. September could then be devoted to reporting. Details about the interpretation technique, the legend and the mapping units will be given in the report

* Three sources are: Senegal project
IRS No. 22 and Soils Reps.
Alic report on Gambia

c) Preparation of the cropland, forestry, and rangeland maps.

Much progress was made on interpretation of the MarkHurd aerial photographs (1:50,000 scale) of The Gambia. Interpretation consisted of delineating such land features as cropland, natural vegetation cover types, rangelands, etc. onto transparent overlays on each photo. Using conventional air photo interpretation techniques, each cover type was identified and coded with reference to a provisional legend. The legend was developed in part from results of our reconnaissance field survey, from the legend adopted by the Mixed Farming project for the upper two divisions, from cover types identifiable on the air photos, and from other references on The Gambia and Senegal. The legend and coding system will not be finalized until completion of the interpretation effort. At the end of the reporting period, interpretation was complete for approximately 75% of the country, corresponding to roughly 300 photos. The interpretation overlays will serve as the basis for the cropland, forestry and rangeland maps.

Aerial Survey

The whole country was covered by an overflight on June 26. The duration of the flight was one hour and forty minutes going east along the southern bank of the Gambia River and slightly shorter on the return along the northern bank. Refuelling was done in Tambacounda. Flight elevation averaged 1000 feet but it was lowered to about 300 feet in some areas for detailed observation. 35mm slides were systematically taken from both sides of the aircraft and accurately correlated to the topographic map. A total of 7 rolls of film were taken. The slides are of good quality, and will be used for the characterization of the mapping units (ground truthing) as well as for illustrations in the final report.

Two short field trips were conducted on July 8 and July 12 within the vicinities of Yundum, Brikama, Brufut and Gunjur. These excursions served to verify a number of vegetation, soils and agricultural cover types that had been previously delineated on the air photo overlays.

Have had several visits by Dr. Josh Posner, GARD Project. We have assisted Dr. Posner in selecting aerial coverage for a number of villages in The Gambia, and have given him some advice on interpretation. Dr. Posner has given us many useful insights into local farming practices.

Other visitors include two consultants from the Kreditanstalt fur Wiederaufbau. (KfW) a German agency financing development projects. They visited the office in Abuko on several occasions to discuss their problems and to consult photographic and map materials.

Arrangements for the upcoming RSI seminar on cartography and remote sensing were made. A seminar room was reserved at the Management Development Institute.

Received a copy of the final legend adopted by the Mixed Farming Project. This legend will be used as a major reference for the maps being prepared under this contract.

Dr. Fred Westin and his wife, Wilma, arrived in Banjul from South Dakota on July 11. Dr. Westin will be conducting the upcoming seminar scheduled for July 14, to July 25.

RSI COORDINATION ACTIVITIES (Home office, Brookings, SD)

15-21 June:

Marc Staljanssens appointed Acting Team Leader during vacation leave of Team Leader. Plans for seminar to be conducted in The Gambia 14-25 July finalized. Schedule telexed to The Gambia for distribution to participants.

22-28 June:

General administration of project. Request sent to Hunsberger, River Basin Development Office, for permission to reprint 64 frames of 1:50,000 scale B/W aerial photography of The Gambia. Order placed with Markhurd. Permission received to reprint photos on 30 June. Order completed and delivered on 8 July.

30 June - 5 July:

Request for Dr. Westin travel to Gambia on July 10 submitted on July 1. Concurrence received. Mixed Farming legend received from Ed Reagelmann and sent to field team.

6-12 July:

Received names of 5 Gambians nominated for training in the U.S. on July 9. Arranged travel to U.S. and transit allowance for Gambian trainees. Arrangements for seminar in The Gambia finalized. Fred Westin, Seminar Instructor, departed for Gambia on July 10.

Achievements

The bulk of the interpretation of air photos was completed during this period, representing major progress towards completing the maps. Provisional legends have also been formulated for the soils, vegetation and land use cover types. These legends will be used to devise the final soils, cropland, forestry and rangeland legends. We have either received or gained access to the remaining reference data listed on page C3 of the contract, and have also acquired additional office space.

A highly successful aerial survey of The Gambia was completed, providing the team with valuable photographs of all major landscapes found in The Gambia. These have proven useful to the interpretation effort.

The updating of the existing planimetric maps is virtually complete, and the worksheets are ready for final drafting.

Problems Encountered

Several problems were encountered during the course of this period:

1. Upon receipt of the aerial photographs on June 13, it became apparent that there were major gaps in the coverage of The Gambia, amounting to about 50 missing photos. This oversight resulted from the inaccurate placement of the Gambian border on the supplier's photo index sheets used in preparing the order for the photos. The extremely short project start-up period at RSI contributed to the fact that this error was not recognised earlier. The missing frames were ordered and received by the team in Banjul on July 11. The cost of the missing photos (over \$500) plus the fact that MarkHurd raised its prices by over 10% have resulted in a major overrun of the air photo budget.

Transportation

Transportation long remained a major problem which has not been completely solved.

The land rover borrowed from the former Mixed Farming Project (MFP) proved to be very useful for the reconnaissance field trip (June 9-12) but the use of an official vehicle with driver and during official working hours did not accommodate the team's need to work overtime. Moreover, the Land Rover eventually had to be turned over to the GARD project and a car had to be rented from a private company (Africana). This vehicle still has no spare tyre which prevents its use for field trips, and limits its use to the Banjul area.

2. (Transportation)
3. The Gambian counterpart to the Project, Mr. Omar Njai, was recalled by his superiors after only three days to participate in other activities. This meant that the team had to assume the assignments given to him, thus slowing the overall progress.
4. We have noticed that the scale of the aerial photography is significantly smaller than the specified 1:50,000 scale (up to 10% smaller), and that the scales may vary from one flight line to another. This will complicate the transferring and registration of interpretation lines to the base maps. This is expected to delay the preparation of the final worksheets (pre drafting phase) by a minimum of two weeks.

5. The field data collected by the Mixed Farming project on rangelands of the upper two divisions has not been located. This data would be very useful for legend development and for the technical report. Further efforts will be made to locate these data.
6. The interpretation effort has been set back by approximately 8 man-days due to frequent power outages at Abuko. Artificial lighting is required for work involving the stereoscopes. Attempts to work on weekends have also been hindered by these outages.

Recommendations

The problems having an impact on the interpretation, transferring and map registration tasks are those requiring immediate attention. The timely completion of these three tasks are crucial for keeping the work on schedule. The upcoming task of transferring and registering the interpretation lines to the basemaps is of particular concern given the late arrival of the missing photos and the scale problems. It is recommended that a second Zoom Transfer Scope (or equivalent instrument) be borrowed or rented at RSI in order to expedite these tasks.

The replacement of a Gambian counterpart is less concern at this point, given the shortness of time before the team's departure dates (July 21 and 25).