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BANGLADESH LANDSAT - 2 PROGRAMME

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CR-155257

I. INTRODUCTION

Title of Investigation : Investigations using data from Landsat-2
Investigation Number : S G 27950
Principal Investigator : Dr. Anwar Hossain
Name & Address of Principal Investigator's Organisation : Bangladesh LANDSAT Programme
LANDSAT CENTRE,
House No. 605, Road No. 18,
Dhanmondi R.A., DACCA, Bangladesh
Date : November 1977
Type of report and period covered : Quarterly Report, July-September, 1977
Name & Address of Sponsoring agency : Bangladesh National ERTS Programme,
Science & Technology Division,
Ministry of Education,
Government of the People's Republic of
Bangladesh, Dacca.

II. TECHNIQUES

Landsat imageries were reproduced in the ERTS Laboratory from the EROS' negatives using locally made contact printer and a Fuji Enlarger Model N-690 MF. For various features studies, analysis and interpretations, different colour composites prepared with the Diazo printer and developer have been used.

The newly acquired Zoom Transferscope (ZTS-4 Baush & Lomb) has been used to make comparative studies of old maps with recent Landsat-2 imageries/ mosaics.

Landsat Centre's Planvariograph has been used for map enlargement for various studies.

III. ACCOMPLISHMENTS

1) Landsat Centre is gearing up its activities with increased UNDP assistance and continuous supply of Landsat imageries from EROS Data Centre. During the quarter ending on September 30, 1977, the imageries received from EROS were catalogued.

2) A two-day Seminar/Workshop on 'Remote Sensing and Satellite Surveying' was organised by the Bangladesh ERTS (Landsat) Programme in Dacca on July 1 and 2, 1977. Dr. Z. D. Kalensky, Research Scientist, Forest Management Institute, Environment Management Service, Ottawa, Canada was the principal speaker. This was principally organised as a training Seminar/Workshop for members of Task Force of Bangladesh Landsat Programme, but participants from concerned Govt. departments and autonomous bodies also participated. Certificates were

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distributed to participants at the end of the Seminar/Workshop.

3) Dr. N. H. MacLeod, FAO/UNDP Project Manager for the Bangladesh ERTS (Landsat) Programme has joined ERTS (Landsat) Centre as the Remote Sensing Adviser to the Task Force on September 20, 1977. Dr. MacLeod worked with the Bangladesh ERTS Programme as a short-term consultant during December 1976, - February 1977. His return as long-term adviser has been received with enthusiasm and the activities of the Task Force has been geared up since his arrival. His advice in planning and programming and his liaison with UNDP/FAO has been extremely useful.

4) Dr. R. A. Pacheco, a short-term consultant from FAO, Remote Sensing Unit, Rome for the ERTS Programme arrived in Bangladesh on September 26, 1977 for three weeks. He worked with the Task Force and made a stratified analysis of all the 16 Landsat format of Bangladesh and has also selected test sites in all the formats which will be of use in the future programming of ERTS Programme. He also held meetings with the Task Force members and prepared field sheet for ground truth data for different sectors.

5) During the quarter under report a scheme on ERTS (Landsat) Programme Phase II at an estimated cost of Taka 170 million with foreign exchange component of Taka 120 million has been prepared and submitted to the Administrative Ministry for processing. The main objective of the scheme is the establishment of Remote Sensing Centre with a dual-purpose Satellite Ground Station for receiving real-time data from both Resource Satellites and Meteorological satellites. The Govt. of Bangladesh has agreed in principle to establish the Centre and is seeking international support for its development as a regional one. The proposed Centre may also be expanded in future to act as a receiving centre for Seasat in the region.

6) A two year Development Plan (1978-80) of Tk. 151.5 million with F. E. component of 109 million has also been prepared and submitted to the Ministry for processing. This envisages continuation of Bangladesh ERTS (Landsat) Programme during the two year approach plan period of the country that will start from July 1, 1978.

7) During the period under report, the National ERTS (Landsat) Committee was reconstituted. The Committee evaluated the performance in a meeting and appreciated the activities of the Task Force. A report on 'activities of Bangladesh ERTS (Landsat) Programme' since inception (March 1974- August 1977) is now being prepared.

8) Two T. F. members attended the meeting on "Study of Cropping systems and Cropping Intensity" organised by Bangladesh Agricultural Research Council in order to find out the best possible way of initiating a study on the subject.

9) There was a two-month course on 'Atmospheric Physics and Remote Sensing' organised by Space & Atmospheric Research Centre of BAEC. Two investigators from Task Force attended the course.

10) Mr. M. U. Chaudhury, Chief Investigator (Forestry) and Secretary of the ERTS Task Force visited People's Republic of China as a member of FAO/UNDP study tour team on Forestry support for Agriculture.

SIGNIFICANT RESULTS

1) Agriculture and Cartography sectors together have prepared a land use map of D.N.D. (Dacca-Narayanganj-Demra) Project area on a scale 1:50,000 with the help of Landsat imagery of March 1976 and aerial photographs of 1975.

2) Geology sector has studied the Landsat imageries of Dinajpur and Rangpur districts. The difference between the exposed Pleistocene red clay, Pleistocene red clay under alluvial cover and recent Alluvium were noted. A field check will be carried out in the coming winter. These sectors have studied the drainage patterns of Phulbari-Bariapara area of Dinajpur districts and Sitakunda area of Chittagong district with the help of satellite imageries. This sector has also made comparative studies of the Landsat imageries of Comilla-Noakhali area taken during 1973 and 1977. Significant difference between the grey tones of the two imageries may suggest change in relative wetness of the ground.

3) A system/method to predict crop yield and its relation with average annual rainfall has been developed by the meteorology sector.

Investigations are going on to improve the method.

4) Mosaic map of Bangladesh prepared from ERTS Landsat imageries were compared with the soil map prepared by Soil Survey Department. Different types of soils, crops etc. were delineated on the ERTS Landsat formats and with the delineated details map of Bangladesh showing its physiography and soils were prepared on scale of 1:100,000. Different test sites for ground truth mission were located in this map. This work was done under the guidance of Dr. R. A. Pacheco.

5) ERTS (Landsat) Centre has undertaken a project to study siltation problem faced by BWDB (Bangladesh Water Development Board) Regulator at Kazirhat on the little Feni/Dakatia river and also to study similar effects in the proposed regulator at the Feni river. Dr. N. H. MacLeod is guiding this study.

V. PUBLICATIONS

The following papers/articles/ reports etc. have been published during this period under report.

1) Quaternary geomorphic evolution of the Brahmanbaria-Noakhali area, Comilla and Noakhali district, Bangladesh, M. Abu Bakr, Recs. GSB VOL-1 Part-2, Bangladesh Govt. Press, Dacca, (1977).

2) Studies on Cropping systems and Cropping intensity with the help of Remote Sensing Technology - Dr. A. Azim, Mr. G. T. Hossain, Mr. S. U. Ahmed and Mr. F. U. Dhuiyan.

- 3) Forestry Support for agriculture in Bangladesh - Mr. M.U. Chaudhury, August 1977.
- 4) Storms in Bangladesh - Dr. A. M. Choudhury, September 1977.
- 5) Activities of ERTS Programme (March 1974 Aug. 1977) - Landsat Centre, Dacca.

VI. PROBLEMS

Bangladesh account with EROS has a balance of only \$ 480.00. Placement of fund is, therefore, necessary for continuous supply of imageries.

VII. DATA QUALITY AND DELIVERY

Data quality is good. Landsat -2 imageries from EROS upto March, 1977 has been received. For flood damage assesment study, a request was sent for special coverage of Bb(147/044) frame. Past coverages available are 2 pictures of 1977, 3 pictures of 1975 and 2 of 1973, but they are not enough. For delivery of all coverages, orders are being placed. Delivery is regular and good.

VIII. RECOMMENDATIONS

It is recommended that NASA accepts the proposal of Bangladesh for participation in Landsat - C. NASA may assist Bangladesh in establishing a dual-purpose ground receiving station.

Bangladesh's account with EROS Data Centre may be enhanced initially by \$ 20,000. This enhancement will help in getting continuous Landsat imageries from EROS.

IX. CONCLUSION

It is felt that real-time data available from the proposed ground station will be of good use to develop a National Resources Survey and a Data Bank Centre. For dynamic features study and environmental monitoring, participation in Landsat programme is essential.

Bangladesh desires to get continuous support from NASA in future.