

## NATIONAL REPORT OF THE REPUBLIC OF KENYA

Joseph R. R. Aganyo of the Kenya National Committee  
for Photogrammetry and Remote Sensing

### 1.0 INTRODUCTION

In 1988 Kenya was admitted as a member of the ISPRS at the Kyoto Congress in Japan through the Kenya National Committee for Photogrammetry and Remote Sensing. In the last four years Kenya did not attend any of the meetings organized by the various Commissions due to lack of funds. However, Questionnaires sent by the Commissions have been completed and returned.

### 2.0 PHOTOGRAMMETRY AND REMOTE SENSING ACTIVITIES IN KENYA

The following institutions were involved in Photogrammetry and Remote Sensing in one way or the other:

#### 2.1 Survey of Kenya

The Photogrammetric Section of the Department was engaged in the base mapping at 1:50,000 scale of parts of Isiolo and South Nyanza Districts, the Township Mapping at 1:2,500 and 1:5,000 scales needed for physical planning of the towns and urban centres and map revision of the topographical maps at the scale of 1:50,000.

The Department has recently acquired a Computer-Assisted Mapping System which it is hoped will improve the photogrammetric processes; currently emphasis is placed on the training of those who will operate the system. The system has also got geodetic, cartographic and mapping processing sub-systems.

#### 2.2 Regional Centre for Services in Surveying, Mapping and Remote Sensing (RCSSMRS)

The Centre set up in Nairobi by the United Nations Economic Commission for Africa continued to support the transfer of aerospace techniques applicable to resources analysis, monitoring and mapping to the Eastern and Southern Africa countries. It has physical facilities for satellite image and airphoto analysis capability.

In addition, the Centre has the capability to provide consultancy for resource surveys in Forestry, Agriculture, Land Use, etc.

#### 2.3 Department of Resources Surveys and Remote Sensing

The activities of the Department continued to include the use of aerial photography and remote sensing in mapping and classifying land use in the high potential agricultural areas, counting both livestock and wildlife, studying and mapping vegetation types, mapping forests and urban areas and predicting maize harvests.

It has three aircrafts, three non-metric and one metric cameras and other necessary equipment for taking and processing aerial photographs.

#### 2.4 Photomap (K) Ltd.

The firm continued to provide the following services:

- Black and white, colour and colour infrared aerial photography at scales ranging between 1:3,000 and 1:60,000.
- Engineering Surveys including provision of ground control, site surveys, profiling, sounding, triangulation, precise levelling and GPS surveys.
- Mapping including photogrammetric mapping, photogrammetric profiling, colour mapping and site survey mapping.

#### 2.5 National Environment Secretariat (NES)

NES has so far used "ground truthing" in a lot of its research oriented work. And NES does recognize the great

potential offered by both photogrammetry and remote sensing in the field of environment. In fact, it has used remote sensing in studying the trend of the drying up and sedimentation of Kenya lakes in the Rift Valley. At the same time NES is gradually starting to use the technology of Geographic Information Systems (GIS) and it realizes that remote sensing can provide substantial input to GIS.

NES plans to carry out more of its activities using both photogrammetry and remote sensing.

## 2.6 Air Survey Section, Ministry of Transport and Communications

The Section which falls under the Roads and Aerodromes Department continues to use its two stereoplotters a pugging machine (PUG) and a Co-ordinatograph to carry out mapping for the production of topographical maps for roads and bridges construction. And, it continued to produce most of the maps required by the Department.

## 2.7 Meteorological Department

It is a department in the Ministry of Transport and Communications. It has the following facilities:

### 2.7.1 High Resolution Picture Transmission (HRPT) Earth Station

The station receives AVHRR data from polar orbiting satellites on a 1.1km resolution. Currently data is obtained from NOAA1 and NOAA12, but mostly from NOAA1 from which the visible channels 1 and 2 are used to calculate the vegetation index.

This is mainly because NOAA1 crosses the equator in the early afternoon. Once the digital data is received, it is processed i.e. corrections are done for geometric and radiometric errors. A maximum value composite image is created after every ten days (decade) showing Normalized Difference Vegetation Index which is used by the Drought Monitoring Centre in Nairobi to provide early warning information to both Inter-Governmental Authority on Drought and Development (IGADD) and Southern

Africa Development Co-ordination Conference (SADCC) countries.

### 2.7.2 Primary Data User Station (PDUS)

The station receives data from geo-stationary meteorological satellite (METEOSAT). Real time images are received after every thirty (30) minutes showing the types, height and movement of clouds. These images are used to prepare general public forecasts, significant weather forecasts for both aviation and marine industry.

### 2.7.3 Meteorological Data Distribution (MDD)

This is one of the newest communication service on the METEOSAT 4. The MDD is divided into four channels, each operating at 2400 bits per second. The Department is currently using two channels which have been activated: Rome transmits alpha-numeric data, while Bracknell transmits graphical analyses and forecast products.

### 2.7.4 Automatic Picture Transmission (APT/WEFAX) Station

This station provides processed information from European Space Operation Centre, Darmstadt, Germany, through the METEOSAT. The Department receives information about cloud height, distribution and movement.

Essentially, the APT/WEFAX station is similar to PDUS. The main difference is that whereas PDUS provides digital data, the APT/WEFAX provides analogue data.

## 2.8 Kenya National Committee for Photogrammetry and Remote Sensing

In the last four years the Committee formed seven Sub-Committees to take care of work carried out by the seven Commissions of the ISPRS. Each Sub-Committee initiated a task or tasks to investigate or to research on.

It will take some time before the Committee can make any significant report regarding its work.

### 3.0 TRAINING

Photogrammetry and Remote Sensing are currently taught at the University of Nairobi as part of the degree course in Land Surveying. Remote Sensing is taught in the geography departments of the four universities in Kenya. And, Survey of Kenya offers a technician course in Photogrammetry.

The Kenya Forestry College in the Ministry of Environment and Natural Resources specializes in training in forestry technology; it uses Photogrammetry and Remote Sensing in its training curriculum. And, the Regional Centre in Nairobi offers various training programmes in Remote Sensing and its applications to the Eastern and Southern African region.

### 4.0 CONCLUSION

In the last four years the use of Photogrammetry and Remote Sensing has increased in the various institutions in Kenya. The use will even increase as the country embarks on various measures to conserve the environment. The Kenya National Committee for Photogrammetry and Remote Sensing has thus a major task to publicize the relevance of Photogrammetry and Remote Sensing technologies in the development planning of the country.