



## 1. MAPPING OPERATION

### 1.1 Project Executed

Ethiopia is almost covered by 1:250 000 scale four colour topographic maps. These maps are now fairly old and need revision but due to other priorities the Agency is not able to revise them.

Since 1971 Ethiopian Mapping Agency is engaged in producing the national standard topographic maps at 1:50 000 scale with the future plan to cover all development priority areas of the country.

To cover the whole country at 1:50 000 scale over 1700 map sheets are required. Till the end of January 1984, 230 map sheets or little over 12% of the total is published.

These maps cover the central, south western and North Western part of the country which have high agricultural, geothermal, hydroelectrical, forest, mineral and water resource potentials.

### 1.2 Photographic Coverage

Ethiopia is completely covered by 1:50 000 scale wide angle aerial photographs (1957-1982). When mapping requirement of an area arises, unless a recent coverage for that area existed, new photography is reflight. In 1980 and 1982 alone over 174 000 sq.km. area with wide angle camera at 1:40 000 and 1:50 000 scale was reflight.

Large scale photography at 1:10 000 - 1:20 000 covering the central part of the country and at 1:5 000 - 1:10 000 scale for major towns exist.

Since there is local facility for taking aerial photographs for smaller than 1:20 000 scale, all <sup>but</sup> such project is given to outside contractors.

### 1.3 Instrumentation

Mapping Operation of EMA is equipped with two A10, two C8, three A8, five PG2, one B8s, One PMG2, one PUG3, one inter-pretoscope, two copy cameras, two offset presses, one flat bed press, contact printers and other dark room and cartographic equipment.

### 1.4 Manpower

The Mapping Operation of EMA, is composed of photogrammetry, cartography and map reproduction division with 114 technical staff.

## 2. GROUND SURVEY OPERATION

### 2.1 Project executed - Two methods employed

- conventional
- photogrammetric

a) Conventional:- For small areas where aerial photographs are not required, this includes the cadastral survey. This type of map is done for various Ministries, Agencies, Authorities and Commissions upon request for projects like:

- Hydro-electric power plants
- Geothermal studies
- Expansion of plants and factories
- Land reclamations
- Settlement areas
- Expansion of state farms
- All other engineering works like construction of dams, canals, dikes, etc.

b) Photogrammetric:-For coverage of larger areas where conventional method is unapplicable, only the photograph of the project area is flown and submitted to the Agency by the client; and a survey is conducted to determine the co-ordinates by the survey operation. The necessary data are delivered to the mapping operation.

## 2.2 Instrumentation

As far as instrumentation are concerned for large scale mapping conventionally ~~was~~ DKM 502, DI10, level instruments like NI2 and N3 and other Kern level instruments <sup>are used</sup>. For larger areas EDM's like MRA3 and MRA5 Tellurometers, T2, T3 and other Kern Theodlites for distances and angle measurements.

## 2.3 Manpower

The Ground Survey Operation of EMA is composed of office survey, geodetic survey and large scale survey division with 63 employees under it. The manpower is catagorized into professionals, semiprofessionals, and survey technicians.

## 3. RESEARCH AND DEVELOPMENT SERVICES

### 3.1 Thematic Mapping

a) National Atlas:- The preliminary edition of the national atlas of Ethiopia was completed in August 1981 and had been in circulation since October 1982. The Atlas, which is in black and white, consists of 91 sheets of maps (1: 4 000 000) graphs and charts. It contains descriptive texts for most of the maps. This atlas which is quite comprehensive covers the physical, climatic, social and economic aspects of the country.

The second phase of the development of a national atlas in multicolour is on progress. About 80% of the raw, updated data needed is collected.

b) Landuse Maps:- During the last three years base maps at 1:50 000 scale have been prepared for the purpose of landuse studies and mapping of seven coffee districts. Included are such features as roads, water bodies, settlements, boundaries of peasant associations etc.

- c) Regional Atlases:- One of the prime objectives of R & D department is to produce atlases of the fourteen regions in the country. In this respect the atlas of one region is already started. About eighty five percent of the required data is obtained.
- d) Gazetteers:- Another area with which the Department deals is gazetteering of places<sup>2</sup> names and geographical features in Ethiopia. This includes among other things brief description of the places with reference to their historical, economic, political and cultural importance. At present geographical descriptions based on different maps and sketches is prepared for 1430 rivers at different parts of the country.
- e) Topical Maps:- To satisfy the specific orders and requests of various government and public organizations the Department produces special purpose maps on various topics.
- f) Manpower:- The Research and Development Department of EMA is composed of Thematic map and Remote Sensing Divisions with 15 employees under it.

### 3.2 Remote Sensing Operations

A Remote Sensing Division is already established in the Department. Strengthening the division as a service giving centre is in progress.

## 4. TRAINING

All the Technical personnel have undergone on the job training at the Agency for a long period of time and over 40% of the employees got their specialization and advanced training abroad in the field of surveying, geography, photolaboratory techniques, Photogrammetry, Cartography and Map Reproduction.

It has been emphasized that shortage of trained manpower especially at higher level is the major constraints which are confronting the Agency. Steps are, therefore, being taken by the Agency in order to fulfill the required number of trained manpower through the assistance of friendly countries and other International Organizations.

5. OTHER NATIONAL MAPPING UNITS

Other technically oriented organizations have small technical units specifically catering for their own needs. Their special survey and mapping outputs account for 15-20% of national mapping requirements.

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