THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
NATIONAL REPORT
ETHIOPIAN MAPPING AUTHORITY - LOOKING INTO THE FUTURE *

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ABSTRACT

The National Report of the Federal Democratic Republic of Ethiopia entitled "Ethiopian Mapping Authority(EMA) - Looking into the Future" presents the highlights the EMA has been undertaking in implementing its ambitious Ten - Year Master plan that envisages to effectively and efficiently address customer needs by providing adequate, timely, reliable and customized geoinformation. Within the ten year period beginning 1994, the plan entails the transformation of all mapping activities into digital system, full computerization and modernization of the management system, completion of the 1:50,000 topographic mapping project which stands at 50% coverage of the country now and acceleration of the production of geoinformation through available options /orthophoto mapping/ to meet immediate and urgent customer needs.

INTRODUCTION

In today's world of information technology, the responsiveness to the forces of change has become a matter of necessity. The change is so rapid that it requires the sensitivity and dynamism of those playing the leadership role. This becomes even more so when considering the bold steps required to be taken by National Mapping Agencies if they are to be the beneficiaries of the opportunities availed by information technology.

In this consideration, I can say, the Ethiopian Mapping Authority finds itself at a historic moment in time, where under a combination of multiple driving forces of change and modernization, decisive actions are being undertaken to effectively respond to the urgent calls of the time.

The democratization process in the country has ushered in a free market economy that is breaking our old monopoly of the production and dissemination of the geo information resources.

Customers demand for timely and tailored products. Government urges us for more and more efficiency and cost recovery. Donors insist on the development of institutional sustainability. All these call for a rapid change and adjustment to the demands of the time if our mapping organization is to maintain its competitive edge into the future.

EMA's response has been first to conduct structural and functional diagnosis of the organization, a thorough review of its whole setup with a view to shape its future. This was, in the main, carried out by a consultancy mission of international standing assisted by SIDA (Swedish International Development Agency). Based on the findings of this study a ten-year master plan has been drawn, commented upon by renowned international personalities in the field and with a view that it could be subject to continuous refinement and modification to keep it in tune with changing requirements of the time. Implementation has already begun. The highlights of the master plan are the following.

1. ORGANIZATIONAL RESTRUCTURING

Organizational restructuring has been most demanding particularly with the aim of effectively addressing and meeting the increasing demands for geoinformation. Previously less emphasis was given to customer services and marketing. Now customers have become the key elements in the mapping domain.

2. MODERNIZATION OF MANAGEMENT

EMA has been effective in building its technical departments but had given less emphasis to the development of the corresponding counterpart of management and administration domains of the organization. Urgent action was required to put it at a level to remove the impediment for a smooth transition in building a market oriented and competitive geoinformation producing organization. Computerization and staff training in terms of acquiring new skills and change of out look were among the basics for modern & efficient systems of management. EMA's response to this was geared towards effectively addressing these requirements. Hardware & Software have been introduced. Short term trainings have been offered by local consulting firms for a sizable staff in developing computer literacy, in particular, in the areas of records, property financial and personnel management. Senior staff members have been sent abroad to modern mapping organizations for exposure and more is expected to happen along this line in the coming years.

3. DIGITAL TECHNOLOGY AND POSITIVE MOVES TOWARDS DEVELOPING THE READINESS FOR A TIMELY RESPONSE TO URGENT CUSTOMER NEEDS

The introduction of digital technology not only enhances our capability to maximize the utilization of our data resources for a variety of products but also to meet our specific customer needs. These days our customers are becoming well aware of the options they have. If we can not address their interests in terms of quality

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and time they know they can turn to somewhere else. This has alerted EMA to devise ways and explore options to positively respond and efficiently meet such customer needs. For instance:

Orthophoto Mapping with GPS Survey

EMA has introduced orthophoto mapping to meet urgent customer needs in part of the areas in the country where there is no line map coverage. The last three years have proved to be both challenging and successful times for EMA. With the dawning peace and introduction of the free market economy, development enterprises have sprouted all over the country. This has accelerated the demand for geo information more than ever. Realizing that EMA can not address all these requests with conventional line mapping, it has introduced the technology of orthophoto mapping assisted with GPS survey. It was a daring attempt that proved to be successful. We can now proudly cite successful example of contract mapping projects with the use of these technologies. For the Sheraro - Humera mapping project in Tigray for land capability feasibility study, SPOT imagery with GPS survey was employed to produce 31 orthophoto maps of 1:50,000 scale. In the execution of the Abay - Tekeze mapping project for watershed master plan preparation, the technology of Spatial Triangulation using SPOT data was used with the assistance of IGN France along with GPS survey to produce 48 sheets of 1:50,000 scale orthophoto maps.

Digital Technology

EMA has now developed the use of digital technology in its various geoinformation production activities. Its survey and photogrammetric works are now partially digitally processed. Computer Assisted of cartographic activities have already began. Over the past two years the programs Arc/Info, Erdas 8.2 and SOS/MAP and the SUN workstation as an application server have been installed and accordingly a LAN established. Three digitizer workstations were installed for cartographic activities together with an HP raster and vector plotter and a GIS workstation. Two workstations for GIS and remote sensing were installed for remote sensing activities. Consultancy and training have been provided in these areas by a number of international experts. With continued SIDA assistance mapping activity will continue to be more & more digital and respective competent staff developed in the coming two years.

4. THE DEVELOPMENT OF REMOTE SENSING TECHNIQUES FOR RESOURCE STUDIES

Remote Sensing technology has brought new opportunities for resource studies, change detection, land use land cover mapping etc. Realizing the benefits of this appropriate tool EMA has introduced the new technology by establishing a small Remote Sensing Centre with a view to develop it to a national scale. So far a good number of pilot projects have been successfully executed, some for experimental purposes and others based on user demands. It has been strengthened with effectively trained manpower and the ERDAS system upgraded to 8.2 version with installation of two workstations for GIS and remote sensing in a LAN environment.

5. ACCELERATING BASIC TOPOGRAPHIC MAPPING AND MAP REVISION PROGRAMMES

The surveying and mapping activities of EMA involve the planning and production of National Series topographic maps. These include the execution of geodetic survey, all scales of topographic and planimetric maps, thematic maps and atlases, geographic and other related research works for rural and urban development purposes.

In the area of topographic mapping, EMA is presently engaged in the production of 1:50,000 and the revision of the 1:250,000 national topographic map series.

The 1:50,000 National Topographic mapping project was first started with the assistance of the British government(DOS) and latter continued with Swedish assistance(SIDA) and has been going on since 1971 and to date about 45% of the country is covered based on the choice of priority areas of socio-economic potential development.

The 1:250,000 scale topographic map revision has started in 1993. There is an entire coverage of the country with this scale. They were published from 1965-1972. The survey for the map revision indicated that though most of these series of maps have to be revised about 30% needed the most priority. Revision of these maps is planned in two phases and presently the first phase comprising 12% of total coverage has been completed. The second phase, comprising 18% of the total coverage, has already begun with a revised project document that stipulates acceleration through experience gained in the execution of the first phase and by making use of the new digital technology introduced.

EMA has now started implementing its plan of a radical transformation into digital mapping technology in the execution of the mapping and map revision programs. These include acceleration the mapping and map revision programs through the introduction of digital orthophoto mapping and the establishment of digital database for the creation and revision of maps as well as for GIS applications to address specific needs and requirements. This has led, first, to the setting of a time frame in which the activities of the 1:50,000 mapping program has to be completed. Secondly, as this entails the boosting of resources it has led to the appraisal of the required resources in terms of transfer of technology, human resource development and logistics. In fact this has served as the fundamental core for the development of the Ten-Year Master plan that is to serve EMA in its transition to digital mapping technology. We have already taken the first steps on this line and are building momentum to carry us through.

SUMMARY

In summary we see the coming three to five years as a period of fast mapping technology transformation for EMA. Of course we are very aware of the huge investment capital required to bring the change. Its source is not yet assured as well. But we are hopeful. This is because, first the present government, unlike the cases in many developing countries, is aware of the role of geoinformation in the countries socio-economic development and fully supports our programmes. Secondly, EMA has already established the trust in the effective use of assistant fund which could be additional basis for continued technical cooperation to promote development programs of geoinformation in the country.

As we were successful, over the years, in building a strong and respectable mapping organization with the emphasis in conventional technologies so we aspire to build an efficient and modern mapping organization where full digital mapping technology and modern management systems are utilized.