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ECONOMIC COMMISSION FOR AFRICA  
Meeting of Experts on Regional Centres  
for Training in Photogrammetry and Airborne  
Geophysical Surveys and for Interpreting  
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## ESTABLISHMENT OF ECA REGIONAL TRAINING CENTRES

Paper presented by the Government of Tunisia

### Needs of the African countries in Cartography and personnel specializ- ing in related techniques

Thanks to the use of the photogrammetric methods, the problem of the reconnaissance map (small-scale) in Africa may be considered to have been solved.

The problem now facing the majority of the African countries is that of large-scale topographical maps.

Moreover, several countries have now reached the stage of publishing maps on scales larger than 1 : 75,000, and the scale of 1 : 50,000 has serious chances of being used for the first base maps of the continent.

It is therefore most desirable for all African countries to possess a 1 : 50,000 map, all the more so as, at this scale, a topographical map is a working tool necessary for all development studies: mineral inventory, geology, pedology, agricultural development, large-scale

\* For participants only

planning projects, etc... Africa is now beginning to develop its resources and therefore needs to **complete** its regular 1 : 50,000 map within a reasonable space of time.

Certain African countries, like Tunisia, must even begin their 1 : 20,000 or 1 : 25,000 maps.

For this purpose, these countries will have to employ very great technical resources and new photogrammetric methods that will make it possible to speed up the execution of this task.

If, one considers not only the immensity of the cartographic task facing Africa, in view of its urgency, but also the immensity of the countries to be mapped, the lack of equipment and specialized technicians, and the fact that it is already time to think of taking over from the foreign geographical teams that have prepared almost all existing African maps, the full importance of the problem of training cadres will be understood.

#### Background information and the position of Tunisia

The importance of this problem did not escape the African delegations who met at the First United Nations Regional Cartographic Conference for Africa at Nairobi, which adopted a resolution (Resolution 10) requesting that the ECA should include in its high-priority projects the setting up of a regional training centre in photogrammetry, the interpretation of aerial surveys, and airborne geophysical prospecting, and recommending the ECA:

- (1) To request, in the first stage of the preparatory work, the national cartographic services inform them of their views and proposals in this connexion.
- (2) To call a small group of experts to work out practical recommendations regarding the project before the end of 1964.

The Tunisian delegation to the United Nations Regional Cartographic Conference for Africa was among those that presented this resolution at Nairobi; the Service Topographique Tunisien had been invited by the ECA to state its views on the establishment of a permanent teaching centre for photogrammetry, as well as to give an opinion on the advisability of calling together a group of experts, and gave a favourable reply to both questions, reaffirming the necessity of such a centre for the training of specialists and intermediate cadres (engineer level) in cartography.

Moreover, the Tunisian Government desires that such a centre should be established at Tunis.

In fact, by its geographical position, Tunis is the centre of gravity of the Mediterranean basin and a link between Africa and Europe.

Moreover, the existence of a Centre de Formation de Pilotes Professionnels at Tunis will facilitate the training of technicians in aerial photography.

Technical fields in which training at the ECA Centres is needed by Tunisia

For the tasks facing it in cartography: the revision of the 1 : 50,000 map, the preparation of a 1 : 25,000 map, cadasters, etc... Tunisia needs a large number of technicians in all fields of photogrammetry and cartography, and particularly in the following techniques:

- (a) geodesy: stereoscopic ground control
- (b) photogrammetry: aerial photography  
processing of aerial photographs  
large and small-scale plotting  
aerial triangulation
- (c) cartography: cartographical drafting - scribing  
cartographical reproduction  
additions to and revision of maps

Technical subjects in which training facilities exist

Only the executive cadres, technical officers and assistants, are at the present trained in Tunis at the Ecole d'Application des Agents et Adjoints Techniques. The students of the topographical section of this school receive intensive general theoretical and technical training for one year. After this, they are trained on the job as probationers.

On the other hand, the Service Topographique has during the last few years sent about twenty fellowship-holders to the Ecole Nationale des Sciences Géographiques of the Institut Géographique National, Paris, to attend two-year courses for the diploma of "Ingénieur de Travaux Géographiques".

Two technicians have also been sent to the International Training Centre for Aerial Survey, Delft, Netherlands, for one-year courses in photogrammetry.

In addition, several technicians of the Service Topographique have been sent on refresher courses lasting three to six months to the Institut Géographique National Français and elsewhere; these technicians have attended courses in almost all branches of cartography.

Curriculum and teaching methods to be adopted by the ECA Training Centres

The ECA Training Centres should give complete courses for technicians and a course of a higher theoretical level for the training of engineers; the courses should last two to three years.

Apart from the special subjects for the technical training of the various specialists - i.e. astronomy (astrometry), geodesy, topography, photogrammetry, air navigation, cartography - general subjects related to the mathematical, physical, and geographical sciences should also be taught.

Moreover, at the same time as the theoretical courses, the students should receive practical instruction in their specialities to enable them to adjust themselves to their future duties.

The ECA Training Centres might have the following sections:

- (1) Geodesy
- (2) Photogrammetry and Aerial Photography
- (3) Cartography
- (4) Geophysics
- (5) Interpretation of Aerial Photographs

This latter section might be planned differently. Photographic interpretation is of interest only to technicians already trained in a particular speciality who wish to use aerial photographs in their work.

These technicians might be given practical instruction for three to six months at the ECA Training Centres, to introduce them to the technique of interpreting aerial photographs.

Students of the first four sections would be given a technician's or engineer's diploma, as the case might be. A simple certificate might be issued to the students in the fifth section.

Number of students that Tunisia would wish to send each year

Tunisia would wish to send about fifty students to the various sections for training as technicians. The educational level of these students will be that of the first part of the baccalauréat (French school-leaving certificate) for secondary schools.

In addition, Tunisia will need to have about ten engineers trained per year. Student engineers will have a general education of a level corresponding to the second part of the science baccalauréat.

Opinions regarding the ECA Training Centres

- (a) It is desirable for two sub-regional centres to be established, one teaching in French and one in English.
- (b) The geodesy, photogrammetry, cartography and aerial photograph interpretation sections should be accommodated in a single centre. The geophysics section might be in a specialized centre on its own.
- (c) Tunis desires the French-language training centre comprising the four sections relating to cartography and photogrammetry to be established in Tunis.
- (d) It seems that, as soon as the questions of principle have been solved, the governments concerned should be contacted regarding the contribution of the countries towards the construction of such centres.

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