

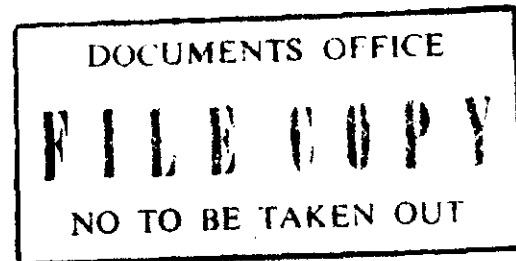
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GOVERNMENTAL RESPONSIBILITY FOR BASIC  
SURVEYS AND MAPS

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GOVERNMENTAL RESPONSIBILITY FOR BASIC SURVEYS AND MAPS

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## GOVERNMENTAL RESPONSIBILITY FOR BASIC SURVEYS AND MAPS

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### Introduction

Certain kinds of basic surveys and maps are a national responsibility and their procurement cannot be left to chance because they are so vitally important to the conduct of many national programs for social, cultural and economic development and for engineering and scientific purposes. Furthermore, their procurement should be planned and programed in a well-defined series of sequential operations to assure efficient and economical production, to avoid waste and duplication of effort, and in the sequence needed for agricultural, minerals and fuels, or industrial development. Such a plan and program might be called a "National Mapping Program" and it should be designed to meet the most urgent immediate needs for basic information, but should not ignore long-term requirements. The National Mapping Program should be prepared by a group of experts and be based upon the needs of the nation for economic development and growth. The program should be designed to provide reconnaissance surveys and maps in a longer-range program.

### Responsibility for Basic Surveys and Maps

In most countries of the world, general purpose surveys, photography, and relatively large scale maps and charts are considered to be a governmental responsibility produced by its own agencies. These include the basic horizontal and vertical geodetic control system; aerial photographs for general mapping purposes which are usually procured from private firms, but the films become the property of the government from which prints, enlargements and special copies of the negatives can be made as required for surveying, mapping and charting purposes; relatively large scale, nationwide planimetric and topographic maps; general geologic surveys, investigations and maps; soil classification surveys and maps; forest surveys and inventories; range surveys and maps; cadastral surveys and maps; and nautical and aeronautical charts.

Such activities as very large scale maps and engineering plans, and airborne magnetometry and scintillometry surveys, are not ordinarily considered to be responsibilities to be performed by governmental agencies, but are usually done under contract with private firms.

### Sequential Surveying and Mapping Operations

Surveying and mapping operations should be programed in a series of sequential operations each of which will facilitate the production of the next sequential operation. A geodetic control system should be planned and programed in advance of all other survey and map operations and done first in areas of the most urgent need.

Aerial photographs should be flown soon after the geodetic control is established. Before photography is obtained the geodetic control points should be marked on the ground so that the marked points can be easily identified in the images of the aerial photographs and thereby facilitate map preparation. The scale of the photography should be chosen so as to satisfy the requirements of the subsequent surveying and mapping to be accomplished. After the aerial photographs are obtained, planimetric and topographic mapping should be accomplished as required by the national programs.

Finally, the topical surveys and maps needed to improve the agricultural minerals and fuels, or industrial potential, of the nation concerned should be accomplished.

#### National Standards

In many countries surveys and maps are not procured per se, but are obtained in connection with some governmental activity. For example, geodetic control to various accuracies may be made to satisfy a particular use and may or may not be referenced to the national horizontal or vertical data; planimetric and topographic maps may be made to satisfy particular needs without regard to standards of accuracy, scale, control, format, or area covered; and topical mapping may be made on various scales and thereby limit their usefulness for national planning and management purposes.

The production of heterogeneous kinds of products should be avoided by establishing, at an early date, national standards for all kinds of general purpose surveys, maps and charts to be produced and thereby make them more useful to the planning and management of national activities.

Economy of operation can also be obtained if standardization of techniques, procedures and instrumentation are established. For example, standardization needs to be established for the execution of geodetic control surveys, the procurement of aerial surveys, the preparation of planimetric and topographic maps, the preparation of topical mapping, and for nautical and aeronautical chart production, so that the techniques, procedures and instrumentation, insofar as practicable within each activity, are compatible and interchangeable.

#### National Programs

No two countries will have the same kinds of national problems to be dealt with. Natural resources, physical environment, conditions of transportation, population and cultures, scientifically and technically trained people, and many other factors, will have to be considered in determining the kinds of national programs that will need to be developed in order to achieve a sound national economy.

In many countries of the world because of large population concentrations, the development of an agricultural base is a first priority requirement and the kinds of surveys and maps that will facilitate agricultural production should be expedited. Other countries, rich in mineral and fuel resources will need to expedite those surveys and maps that will facilitate the exploitation of such resources, including airborne magnetometry and scintillometry surveys and geologic exploration. Still others may determine that conditions are more favorable to industrial development, in which case the surveys and maps that will facilitate such development should be undertaken. And still others may determine that all, or any combination of these, are needed, in which case a careful selection and programing of basic surveys and maps will be required to facilitate those kinds of developments.

#### Conclusion

In some of the less developed, but emerging nations of the world, it may be necessary to provide intensive training of scientists, engineers and technicians in order to be nationally self-sufficient in the procurement of the basic surveys and maps needed for national development. Several of the papers presented by the United States are directed to the subject of education and training. Most of the papers are useful as education and training media in surveying and mapping. Several of them deal with modern methods, procedures and techniques of map production. It is believed that all of them provide important guidelines for the establishment of a comprehensive National Mapping Program.