

## PART V. WATER RESOURCES.

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### INTRODUCTION.

The need for the utilization of the water resources of the Republic is urgent. Agriculture, the principal industry, is dependent in large measure upon successful irrigation and flood control, and the principal cities are sorely in need of better and more abundant supplies of water. In addition, the development of water power is desirable to offset the lack of fuel for the generation of power.

Only a very small part of the few months spent in the reconnaissance could be devoted to a study of the water resources. The equipment available for the study was meager, and the maps at hand were wholly inadequate. The description of the water resources is therefore incomplete and poorly balanced. Some unimportant features are described in detail; other features of great importance are described briefly, for lack of further information. All the information obtained that may possibly be valuable has been given, and the suggestions offered are as practical as they can be made in view of the information available.

Considered according to their mode of occurrence, water supplies may be classified as surface water and ground water. The source of both surface and ground water is rainfall. As stated under the heading "Climate" (pp. 43-55) the mean annual precipitation ranges from about 500 millimeters on the driest lowlands to perhaps 5,000 millimeters on certain high mountain ranges. This precipitation is concentrated in two rainy seasons, which are separated by two comparatively dry seasons. The dates marking the limits of these seasons do not coincide in all parts of the Republic, and both the date and the amount of precipitation at any given locality varies somewhat erratically from year to year. A part of the rainfall fills the streams and lakes, forming surface water, some is lost by evaporation, some is taken up by plants, and a part sinks into the earth and becomes ground water, which ultimately reappears through springs and wells or seeps into streams and into the sea.

A general description of the drainage of the Republic is given on pages 32-36, and a table showing the principal streams in the order of their length is given on page 34. The streams include one large river, the Artibonite, many smaller yet considerable rivers, and a very large number of little rivers and brooks. The larger streams flow throughout the

year but are very low in the dry season. In this season many of the smaller streams are dry throughout all or a part of their courses. In the wet season nearly all the streams are subject to sudden and violent floods, for the steep and rugged slopes of the mountains that cover so large an area facilitate rapid run-off. Nevertheless, the streams are the arteries of the Republic. They supply all the water for drinking and domestic use and for stock, and they also serve to irrigate a large part of the most productive agricultural land.

There are only two large lakes in the Republic, Étang Saumâtre and Étang de Miragoâne. The water of Étang Saumâtre is brackish and unfit for domestic use or for use in irrigation. The water of Étang de Miragoâne is good, but the lake is so situated that it is of little use. The other lakes are small and of slight value as sources of water-supply. Where it is not polluted by waste and sewage, most of the surface water is good for irrigation and for domestic use. The quality of water is considered more fully on pages 542-550.

As the value of a general account of the water resources of the Republic depends mainly upon its bearing on the possibility of irrigating the more arable areas with either surface water or ground water, it seems best to give all the data relating to each area in one place. Before the Revolution the French colonists had constructed a highly developed irrigation system, using surface water, and their engineering works form the basis of virtually all the present irrigation systems. The statements here given regarding colonial irrigation are based on the work of Moreau de St. Méry.<sup>1</sup>

## SURFACE AND GROUND WATER SUPPLY.

Although surface water is mentioned in the following descriptions, it is generally treated much more briefly than ground water, not, however, because it is of less value but because adequate data regarding it are not available.

Much more information has been obtained for the Cul-de-Sac Plain than for any other area, and as a knowledge of the conditions on this plain will assist in giving an understanding of the conditions on other plains, most of which are similar, the Cul-de-Sac Plain will be described first.

### CUL-DE-SAC PLAIN.

#### IMPORTANCE.

The Cul-de-Sac Plain has been one of the most valuable agricultural areas of the Republic, partly because of its proximity to the nation's capital and metropolis, Port-au-Prince, but chiefly because the French

<sup>1</sup> Moreau de St. Méry, L. E., *Description topographique, physique, civile, politique et historique de la partie Française de l'isle Saint-Domingue*, 2 vols., Philadelphia, 1797-98.