One of the greatest problems confronting the American people today is the best use of land and water resources. The whole problem, but especially that part pertaining to water use, is acute in the West, where the water supply is a limited and very valuable resource and should be used where it will produce the most good for the greatest number of people. Aside from municipal uses and hydroelectric development, its most important use is for irrigation of arid land. There is much more land, good and bad, than can be supplied with water for irrigation in most arid sections, and in order to produce the greatest benefit water should be applied only to the best land.

There are many highly productive and very successful irrigation developments and others which are failures. The questions naturally arise: "Why are some projects successful and others unsuccessful? Can we foretell the success or failure of irrigation on any project or tract of land? Can we assure success of a given project?"

The record of irrigation development shows that many factors, physical, geographic, economic, and social have influenced the development and determined the degree of success or failure. Apparently physical factors have had the predominant effect, though the importance of other factors should be recognized.

**Physical Factors**

The basic physical factors are those of climate, water-supply, soil, relief, and drainage. All these, with the exception of the water-supply, are component parts of the natural landscape. Water is brought in to modify the natural landscape. Characteristics of the natural land type or landscape and supply of water for irrigation, largely determine the productivity of the land. With favorable climate, sufficient supply of irrigation water of good quality, good soil and suitable conditions of relief and drainage, the development is very likely to be successful. Unless it has all of these it will fail. Attempts to greatly modify undesirable physical characteristics of the land will, in the great majority of cases, be difficult and expensive and in many cases impracticable. This may or may not be true of bringing water to the land. Examples could be given of projects on which one or more of these factors limit or determine the development.

**Other Factors**

The other factors—partly geographic, partly economic, and partly social—will determine whether it is feasible to supply irrigation water to potentially productive land, or will determine what type of farming is to be successful. Location of the land and distribution of the desirable land types and accessibility of water-supply, market, or transportation facilities may in instances be limiting or determining factors. All these, together with the productivity of the land, determine the cost of production and marketing and the prices received for products and, in the long run, automatically eliminate uneconomic practices and cause abandonment of unfit lands.

The character of the population of a region also has a marked effect on the development of irrigable lands. Mexican and Indian populations are largely unsuited temperamentally and otherwise for commercial agriculture, whereas native white Americans and northern Europeans usually succeed on naturally productive land.

**Soil Survey and Land Classification**

In the past many areas have been investigated with little knowledge of the suitability of the land. It has been the history of many such developments that water has been put on the land most easily and cheaply