

## System capacity

The flow rate required by the irrigation system depends on the size and type of the irrigation system, crop water requirement, time of operation, and efficiency of the system.

Frequently, the discharge is constant for a given irrigation system. However, it may vary, especially for large systems with several zones. A typical example of a variable discharge system is one where the same pump is used for several irrigation zones consisting of solid-set sprinklers and when the zones are not the same size. If possible, the system should be designed to minimize these types of differences.

## Total dynamic head required by the system

For a given irrigation system a pump must provide the required flow rate at the required head (or

pressure). The total dynamic head (TDH) curve of the system (Figure 2) illustrates that more head is required to increase the total flow through the system.

The pressure required for operating a given sprinkler or emitter represents only a portion of the total dynamic system head. Additional pressure must be produced by the pump to lift water from the well or other water source, to overcome friction losses in the pipe and other components of the system, and to provide velocity for the water to flow through the pipe. As a result, the total dynamic head for the system is the sum of static head (distance the water must be lifted), well drawdown, operating pressure (pressure required at the sprinkler or emitter), friction head (energy losses) and velocity head (energy required for water to flow). These components are illustrated in Figure 2. The

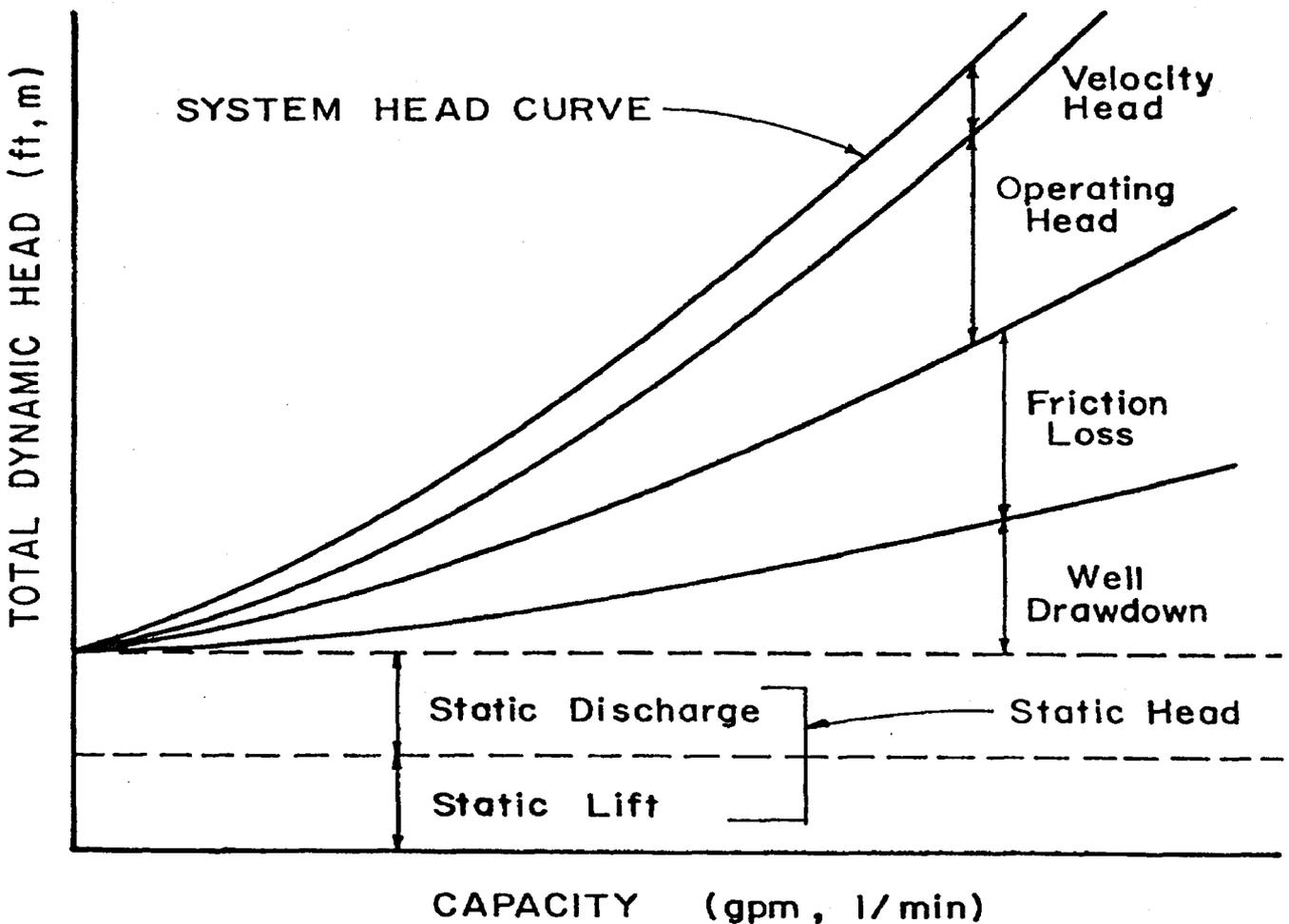


Figure 2. Total system curve and its components.