and winter require rateable semi-module with low flexibility. In Deccan where each individual watering is fixed, rateable positive modules appear to be the only choice. A positive-module has to be rateable, otherwise a great number of sizes have to be built. For proporational as well as rateable semi-modules there is a need for changing the setting without discentaling the whole outlet. Various types of modules have been developed and applied in the irrigation system. Mr. R.G. Kennedy devised Gate Module with an adjustable orifice to give any desired discharge within a fairly wide range. These modules were replaced by other modules due to complicated operation for their satisfactory working. Wilkins module and Reflux module were manufactured but could not be put to use for practical reasons. Gibb Module consists of a semi circular open flume with a set of vanes. The trial of Gib module on the Shahkote distributary was not satisfactory due to setting of the outlet close to bed level and provision of small modular range. The working of Kent "O" type module unlike the Gibb module is independent of the level at which it is set and is quite accurate. This module has been applied in water works, but its high cost would not justify its use in irrigation works. Venturi Module Sluice works through gearing by a small reversible turbine. It requires mechanical knowledge for its operation as compared to operation of gate and its crab. This type of module would be useful for eliminating manual control.

The simplest orifice semi module is a planin pipe or outlet with a free fall, but it has limited field application. The Kennedy Gauge outlet is the semi-module which has been recently abandoned after haivng been extensively used in practice. This type of outlet failed due to incorrect setting, frequent tampering by irrigators and imperfect hydraulic design. Discharge of the standing wave semi-module is independent of the water level in the water course due to formation of hydraulic jump. Mr. E. S. Crump developed a rateable standing wave outlet for proportional distribution on Upper Bari Doab Canal, but it requires further trial on other canals to prove its usefulness.

Board crested weir or standing wave flume also named as "Harvey Outlet" and "Khanewal Flume" essentially consists of a rectangular throat section to control and measure the discharge, a bell mouth to cause flow to fill the throat without contraction or eddies and an expanding section in which velocity head is recovered so as to make the