Evaporation from various surfaces has been the subject of investigations for many years. Knowledge of the components of the surface energy balance components is important to many fields such as agriculture, hydrology, forestry, atmospheric modeling, and remote sensing. Increasing competition for water by agricultural and urban uses, in addition to diminishing ground water supply, has increased the need for accurate and timely evaporation rates. One of the most widely used methods to determine the evaporative flux from the earth surface is the Bowen Ratio Energy Balance method (BREB). In recent years, this technique has been applied to fluxes of other gases.

**THEORY OF BOWEN RATIO ENERGY BALANCE**

I.S. Bowen (1926) showed that the diffusion of water vapor from a water surface into the body of air above it is exactly the same as the diffusion of heat from that surface to the body of air above it. He formulated the ratio of heat loss by conduction to that loss by evaporation, which has been known as the Bowen Ratio. The use of this ratio has been extended to other types of surface.

The BREB divides the available energy (net radiation plus soil heat flow) into sensible and latent heat flux densities using a combination of transport and energy balance equations. Therefore, BREB is the most conservative of the meteorological methods to determine the evaporative flux density because net radiation, a conservative variable that is relatively easy to measure, puts reasonable limits on the magnitudes of the fluxes of sensible and latent heat. Also, multiplication of the turbulent transfer equations or eddy flux variations, as is the case of the direct methods, is not required; however, in some situations, soil heat flux density or energy storage in water layers and canopies is hard to evaluate and requires additional sensors.