



The design model of the project arises from the reflective perception of the operation of a water siphon (1). The mechanism is simple: when one needs to drink, simply open the tap and as the water is received, a cluster of bubbles is produced inside the hermetic but flexible waterproof container. THB-ER unravels this simple principle of kinetic energy, seeking to develop the use of the mechanics of bubble flows and their transformation into electrical energy, through small Kaplan type turbines.

Each of the eight THB-ER is composed of an external structure and glazed perimeter, which has a large volume of seawater, together with all the technical and biological requirements required to sustain the marine life of a variety of fish (2). Within each of these structures, an equidistant set of glass cylinders for residual water columns (3) is fixed and connected structurally and hydraulically to the cylindrical structure of a large domestic wastewater tank (4), located in the center of each THB-ER that has solar panels on the cover (5). Both seawater and wastewater have differentiated mechanisms of use, and at no time are they mixed or disposed of in the same way.

The tank will be supplied by the nearest "Domestic Wastewater Treatment Plant" and the constant flow waters that will fill the water columns are reused for the irrigation of green areas (6).

In this hydraulic process, in each THB-ER constant flows of bubbles are generated permanently that activate 320 small Kaplan type turbines (7), connected in series to obtain electrical energy. The turbines are activated by the motive forces of the bubbles that, transported and directed by technical resources in the design, flow dynamically around the special geometry of the turbines, conveniently displacing the mechanical trajectory of their flow, both around the geometry of these, as in contact with their blades (8).



**TURBULENT HYDRO BUBBLE
ENERGY AND RECREATION
(THB-ER)**

