

# MODULAR GEOTHERMAL DESALINATION PLANT(MGD)

iiDEA "Instituto de Ingeniería Desalación y Energías Alternas"

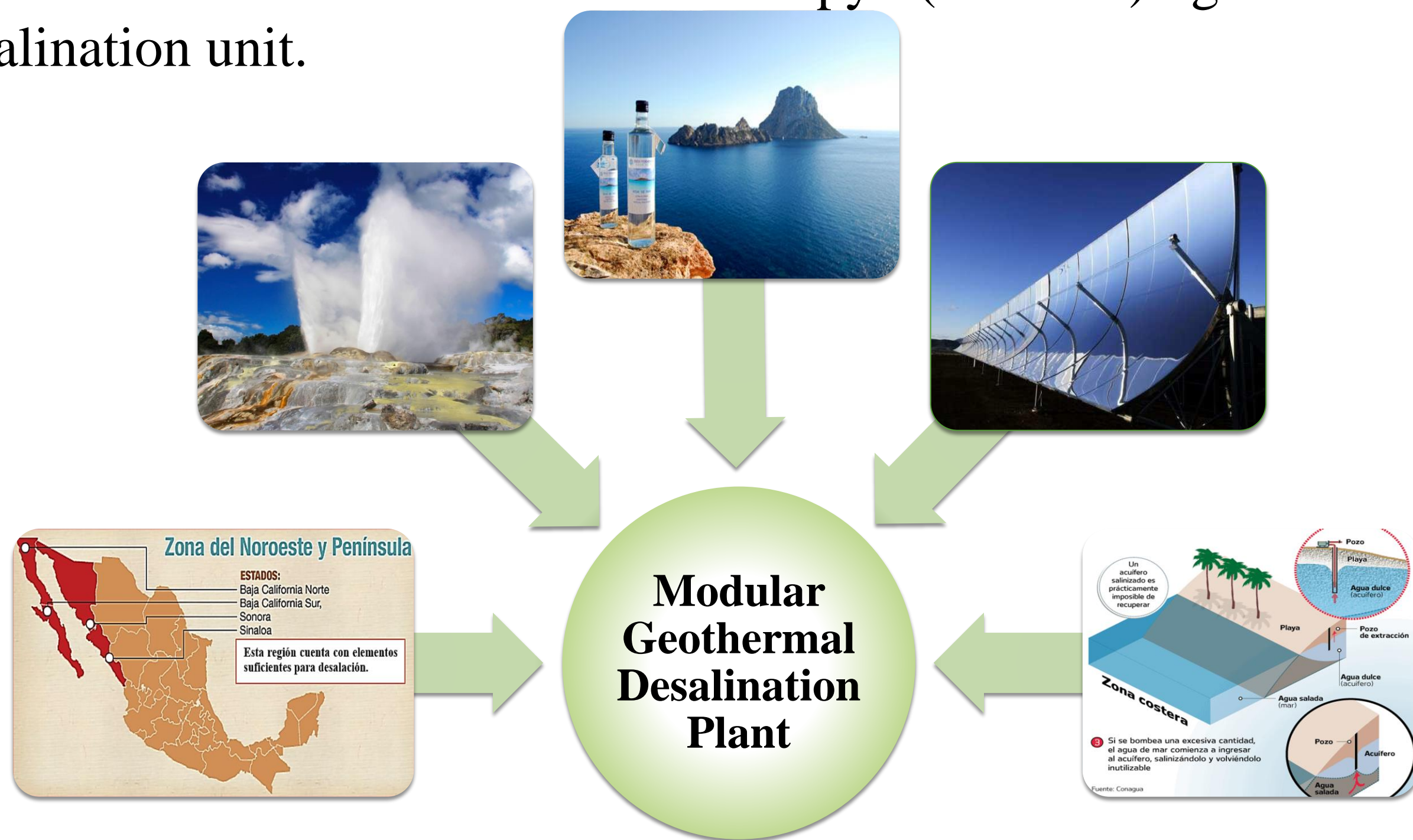
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## Introduction.

Seawater thermal desalination with renewable energy is considered an axis of development for urban support in underserved populations, with lack of water resources and conventional energy access. With this background, iiDEA Group, part of the Engineering Institute, of the National Autonomous University of Mexico, has developed a framework that articulates an innovative low-enthalpy (< 90°C) geothermal energy desalination unit.

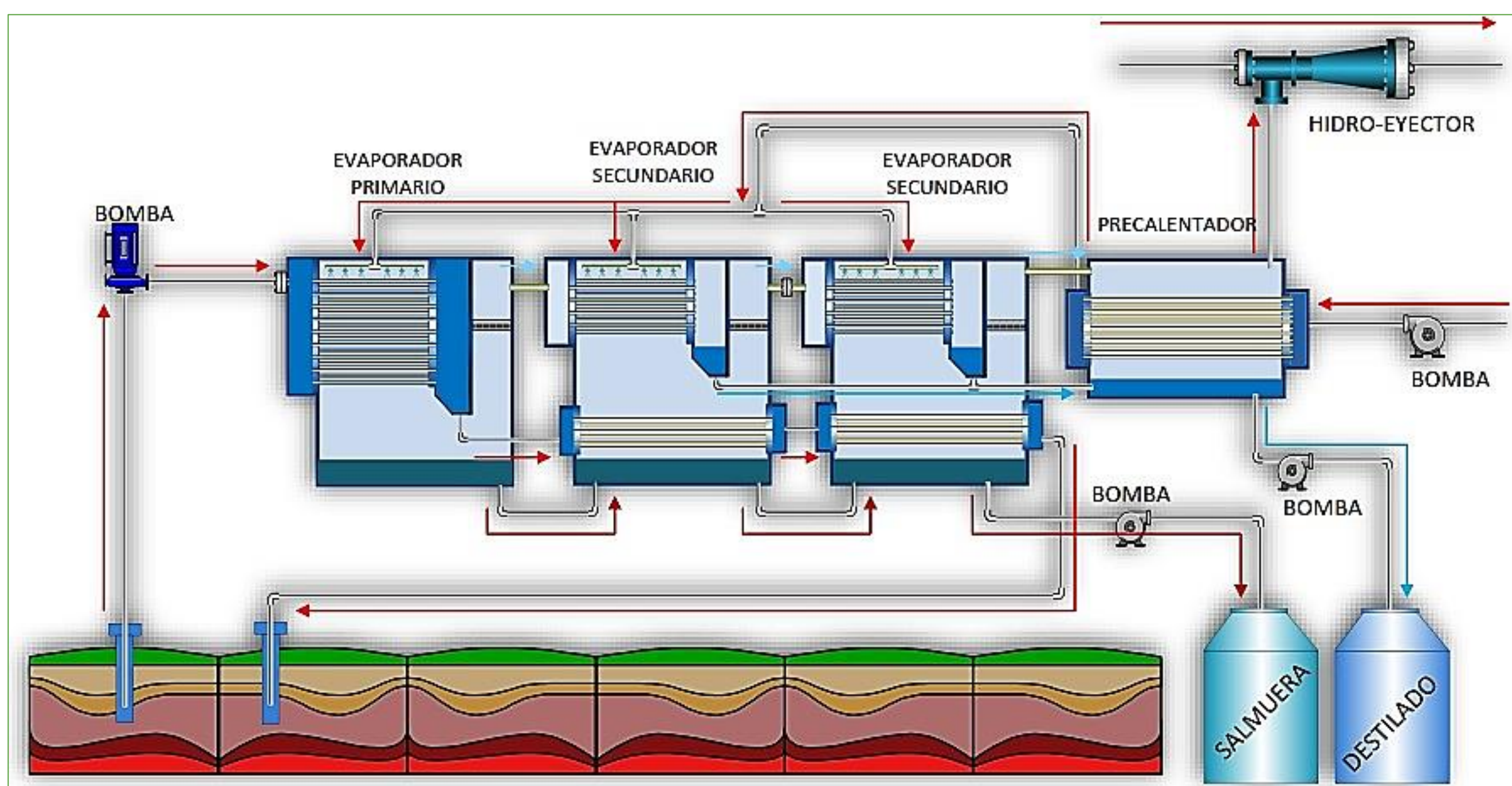


## Target.

MGD system aims to achieve the desalination of seawater or brackish water using energy from a low enthalpy geothermal reservoir, in order to provide water supply to communities in the Northwest of Mexico.

The MGD unit can be adapted to cogeneration systems with fluids at a similar temperature (up to 90 ° C)

## Development.

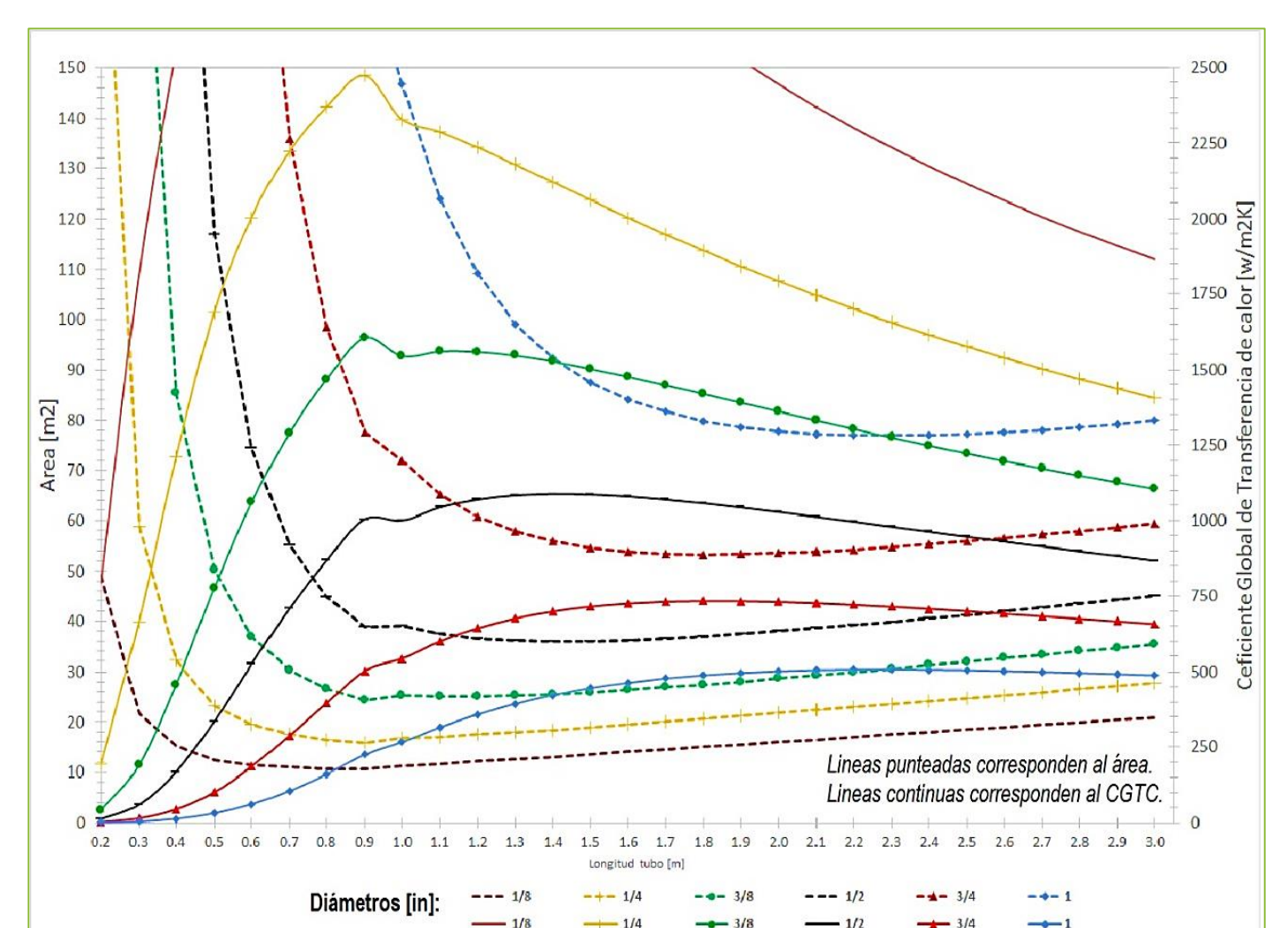


- MGD system builds on conventional desalination methods, multi-stage and flashed,
- The fluid energy (geothermal) is conducted by the three chambers, increasing the thermal efficiency of the device.

Baja California coasts have adequate geothermal energy potential for the desalination unit (Figure shows local hot spots sampled by the Engineering Institute).



Prototype of the first desalination chamber for experimental purposes, launched in the Polytechnic University of Baja California (UPBC), Mexicali BC.



For system optimization, a trade-off between energetic transfer and area adjustment was desired.

## Conclusions.

- There are vast low-enthalpy geothermal resources in México, therefore, it is important to develop technology for the utilization of these resources,
- It is important to serve the needs of water demand in areas where the resource has difficult access, such as Baja California,
- This project promises to satisfy water needs in specific areas, in addition, preventing the overexploitation of natural aquifers.