

FESTEL CAPITAL

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Drinking Water Extraction from Brackish Water or Salt Lakes

Summary

An advanced technology for the extraction of drinking water from high saline containing resources.

The process allows the exploitation of otherwise non-useable water resources.

Decentralisation is possible as there are no special requirements relating to location of the water tower.

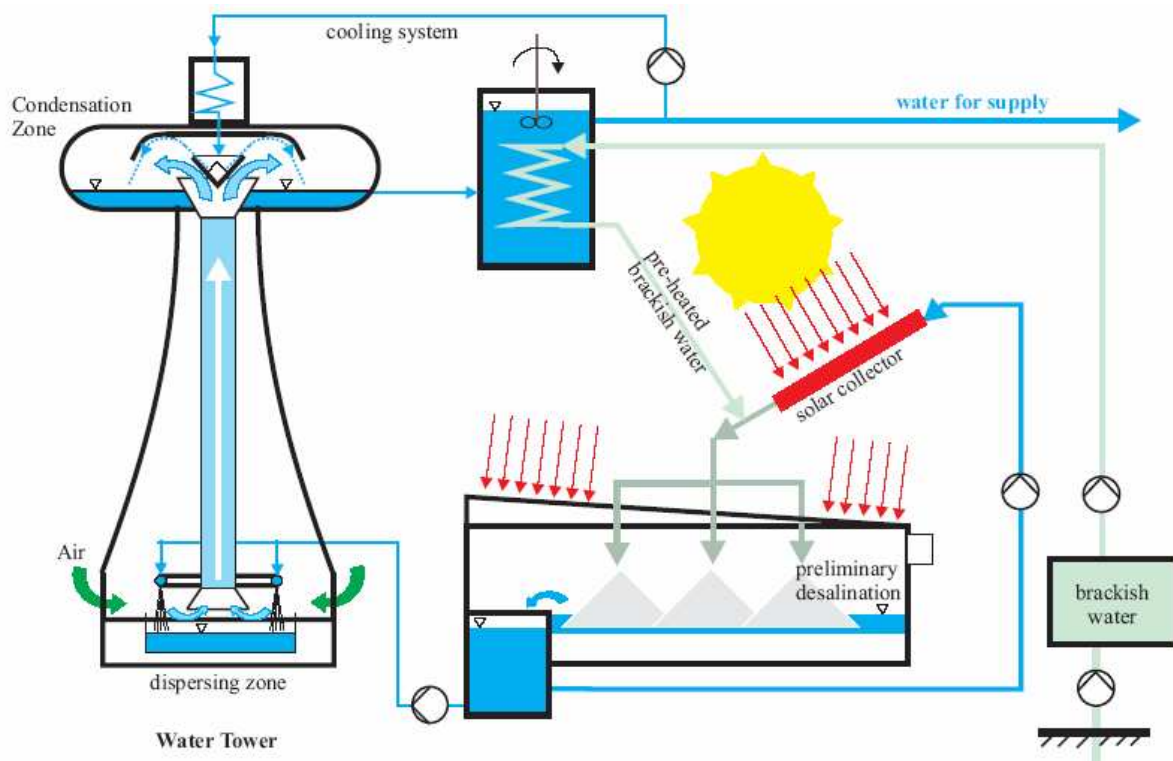
Industrial partners and financial investors are sought for various possible commercialisation options.

Background

In many regions of the world the available water reservoir is characterized by a decreasing amount and an increasing saline load. Especially in desert regions, but also in coastal areas a large number of brackish water resources are to be found which cannot be processed for drinking purposes with present technologies. The reason for this is the high salt concentrations in these brackish waters which do not allow a cost effective application of reverse osmosis or vaporizer technology. A plant has been developed which allows drinking water extraction even at high salinity and is thus also suited for sea water desalination. The system makes use of the evaporation of the watery phase when in contact with air. FESTEL CAPITAL is supporting a German university to commercialise this innovative technology, which is patented in Germany and applied for the GCC (Arabic speaking countries).

Description

The raw water (brackish or salt lakes) is first preheated and then added to the heated (~90°C) and already pre-desalinated water circulating in the solar plant. This prevents the salts from crystallizing prematurely in the solar tubes, thus clogging them.



The mixed water has a temperature of approximately 80°C and the salt can now be crystallized and extracted in a 'house'. One part of the remaining water (low saline load) is now sent back to the solar plant again, and heated up to the needed temperature, while the other part of the water is used for water extraction in the 'Water Tower'. At the bottom of the Water Tower the hot water is jetted (blue arrow). Because of the temperature differences (approx. 40°C) between the inside of the Water Tower and the external environment air is sucked in (green arrow). At a high temperature the air can take up much water due to evaporation. The water-saturated air is condensed by means of cold water at the top of the Water Tower and thus the amount of water increases. At ambient temperature and with a low water content the no longer saturated air leaves the tower at the upper exit. The extracted still warm condensate is used for pre-heating the raw water and is thereby cooling down. One part is reused as a condensate medium at the top of the Water Tower, the other part serves as the consumer's water resource.

Application areas

The process for drinking water extraction from brackish water or salt lakes can be implemented wherever a liquid, saline resource is given. This applies especially to the many saline reservoirs which otherwise are of no further use.

Advantages

- Extraction of drinking water is possible even at high salinity, thus allowing the exploitation of otherwise non-useable water resources.
- There are no special requirements concerning the location and the water tower design is adapted to urban areas and can be integrated anywhere.
- Can serve a decentralized purpose, which is especially interesting when water extraction is being combined with the development and planting of land.

Investment Opportunity

The aim of FESTEL CAPITAL is to commercialize this innovative (drinking) water processing technology. In the search for industrial partners and financial investors different commercialization options, such as founding a dedicated start-up company, out-licencing or a sale of all relevant intellectual property and know-how, are possible. Detailed information can be provided after the signing of a confidentiality agreement.

Disclaimer

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About FESTEL CAPITAL

FESTEL CAPITAL is an advisory and investment firm focusing on the commercialisation of technologies in the areas of energy, environment, health, materials and nutrition.

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