



Iran Water & Power Resources  
Development Co. (IWPC)

## SALINE FUTURES CONFERENCE

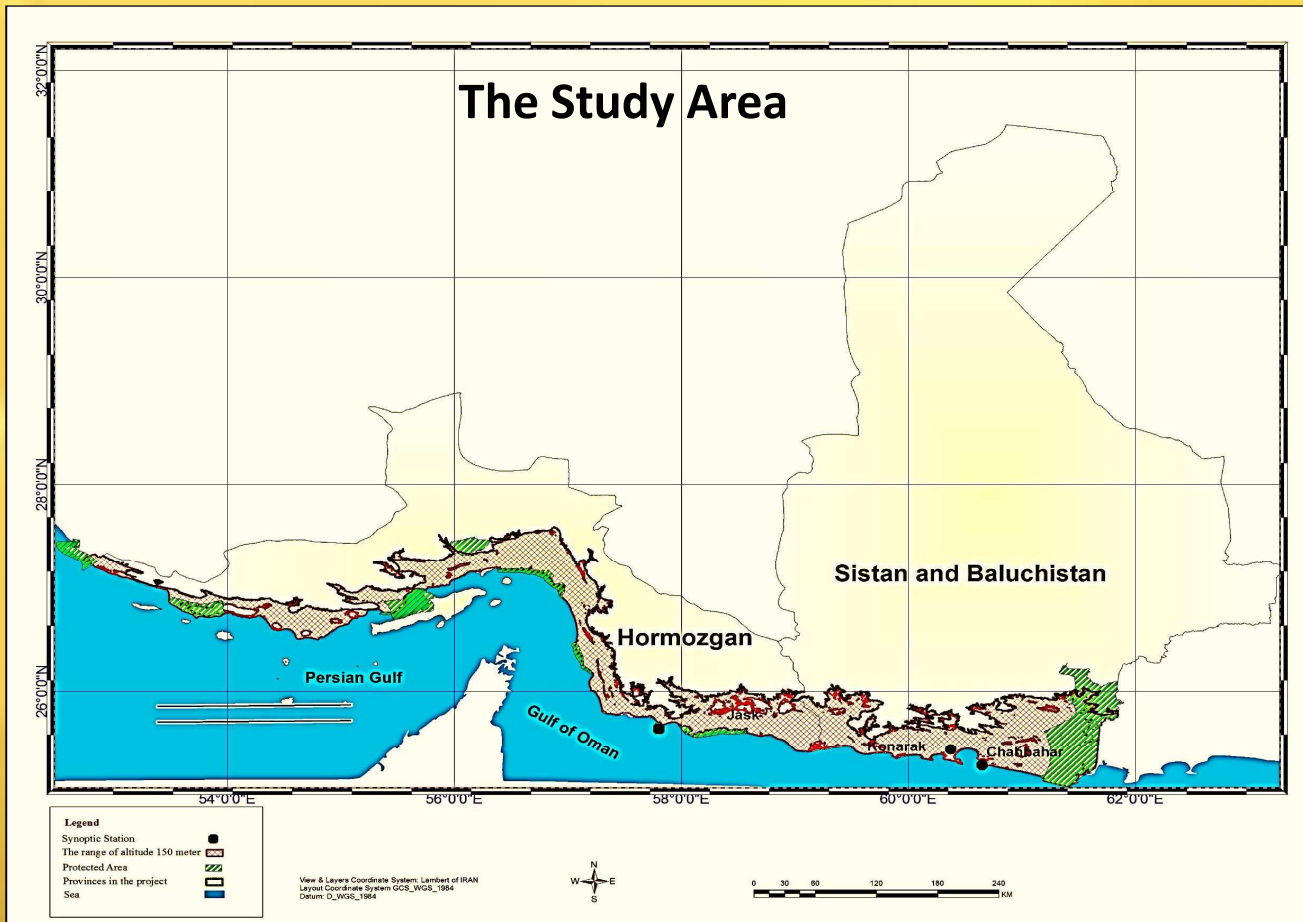
# The Study of Iran's South Coastal Areas Development Using Saline Water and Soil Resources



Dezab Consulting Engineers

### Introduction

Using the unconventional resources is one of the strategies to manage the increasing needs of human beings. Iran, a country with a population of more than 81 million, is among 17 countries suffering from extremely high water stress. On the other hand, the increasing population, the access to seawater in north and the south, and available vast marginal lands make Iran inevitably use saline water and soil in future. A study, focusing on Sistan and Baluchistan and Hormozgan provinces, is currently conducted by Dezab consulting engineering in this regard.



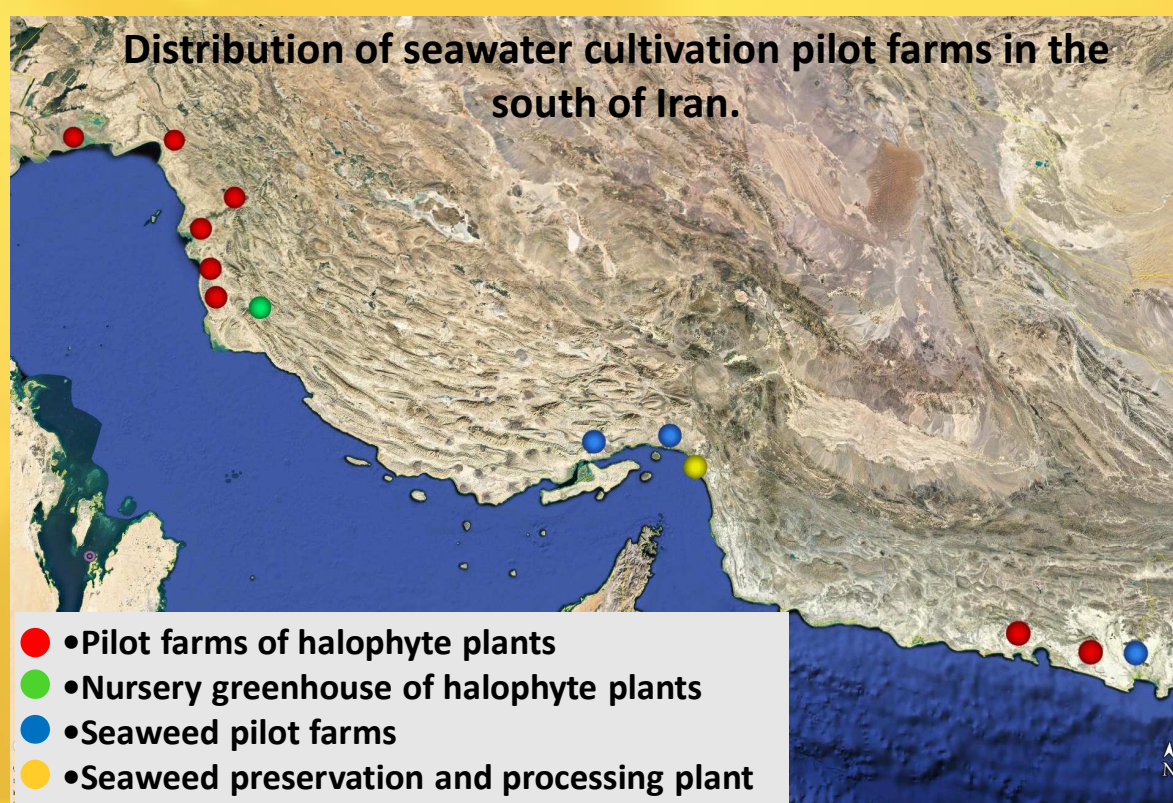
### Makran zone in the south of Iran

Makran is a semi-desert coastal strip in Balochistan, in Pakistan and Iran, along the coast of the Gulf of Oman. The area of this coastal area is more than 600 square kilometers. The region has three levels of national, regional and international economic capacity.



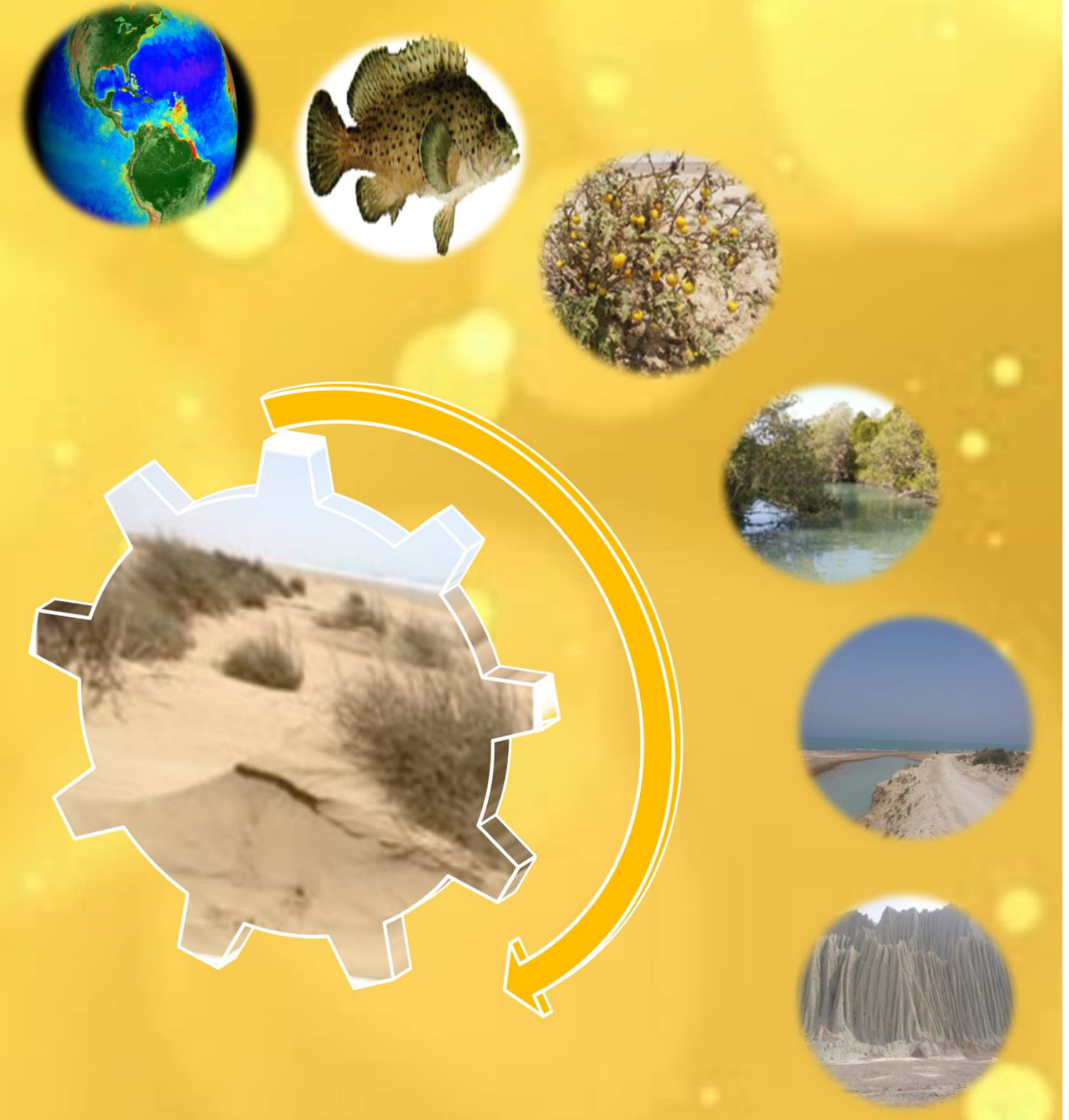
### Project introduction

Utilizing saline water and soil can be in form of different activities including biosaline agriculture and mariculture. The aim of this project is integrating these activities as a system in a way that leads to increase water use efficiency and minimize the wastewater. In such system, as Carle Hodges named it integrated seawater system, the source of saline water is seawater. In such a system there are shrimp and fish ponds, brine shrimp, micro algae and algae cultivation units, salt farms and evaporation ponds. The units are arranged so that effluent of each unit inters to the next unit as the input. Besides, a seawater greenhouse could also be considered.



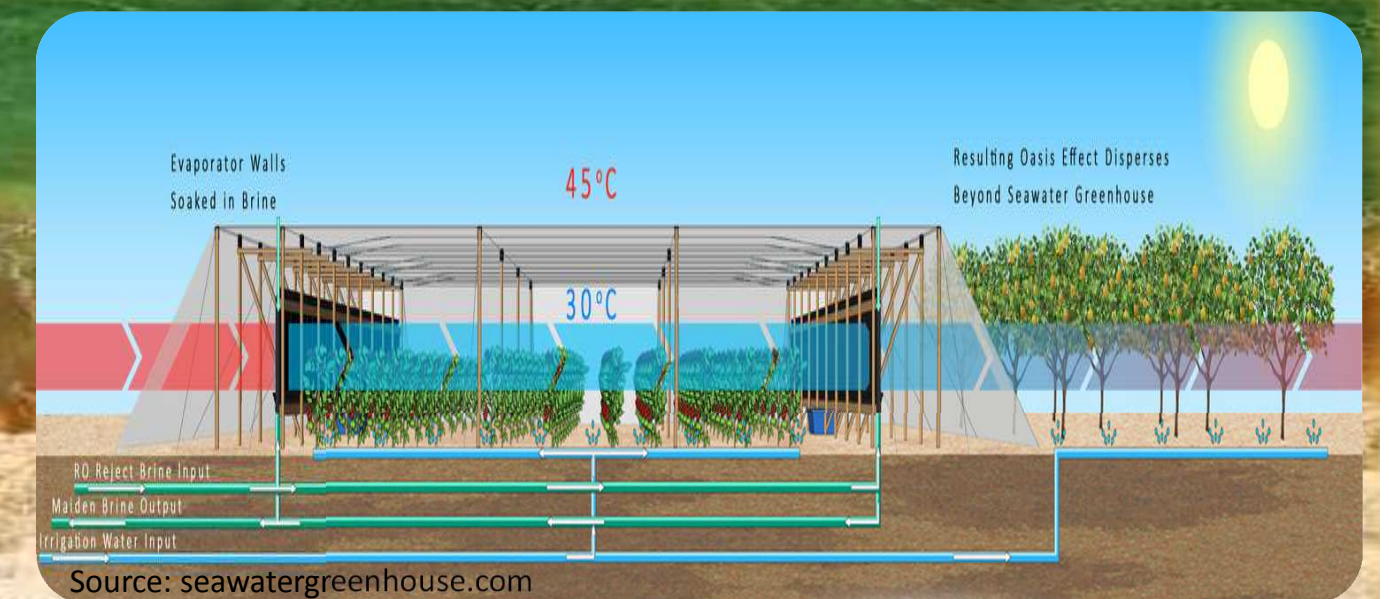
### Iran potentials for using saline water and soil.

1. Free access to unlimited seawater at southern coast of Iran.
2. The availability of vast marginal lands in southern coastal areas.
3. The development of tourism industry regarding natural attractions.
4. The government policies for the development of Makran coasts.
5. Experienced farmers good at agriculture and aquaculture.
6. Valuable native plant and aquatic species in the study area for cultivation.



### The project steps

- 1- Literature review on global experiences
- 2- Field visits
- 3- Identification of native and non-native aquatic and plant species that can be cultivated in the study area.
- 4- Design and calculations (determination of site area, estimation of volume of water required)
- 5- Providing possible patterns of integrated seawater system
- 6- Site selection studies and selection of best sites

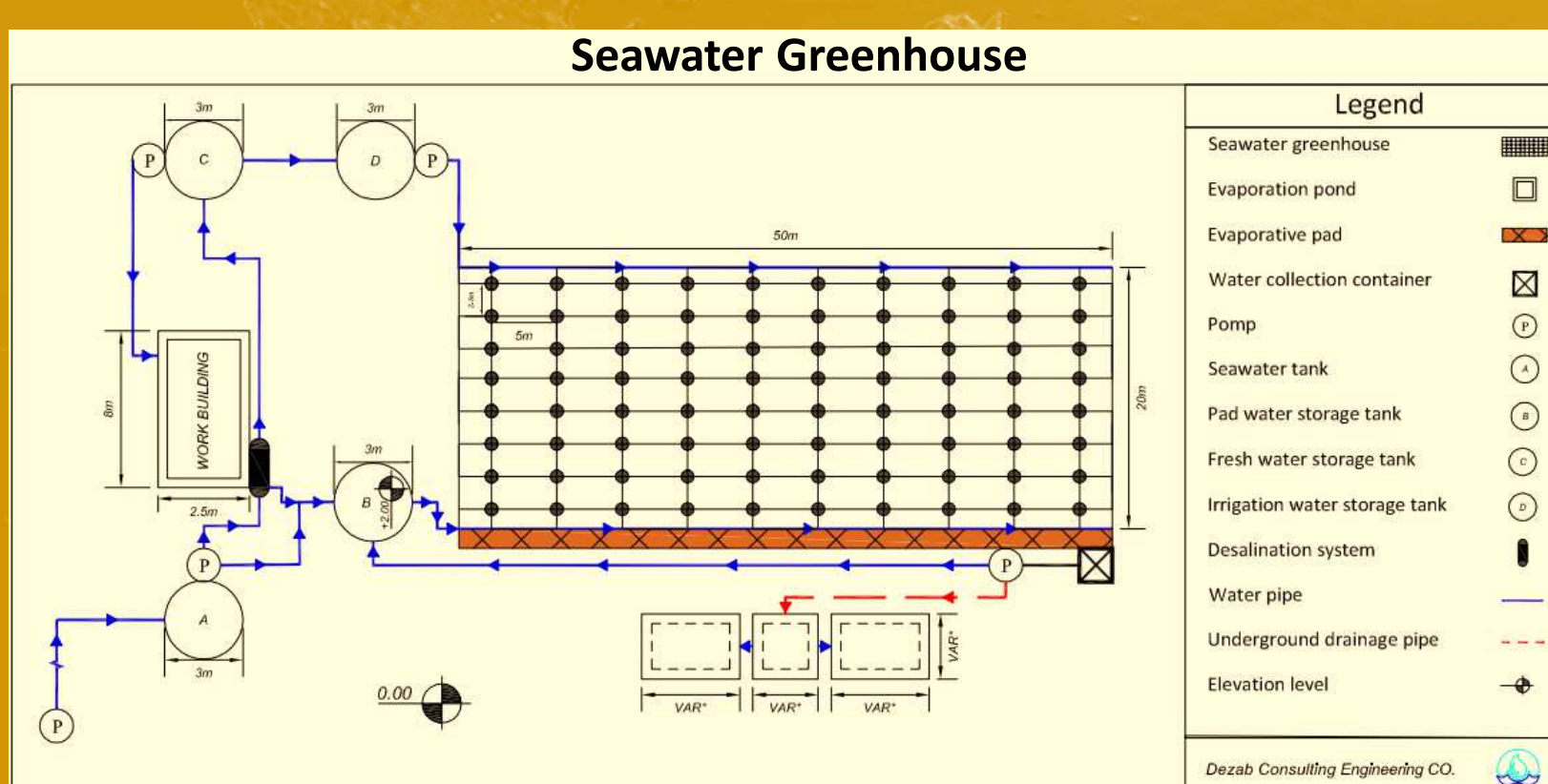


### Seawater greenhouse

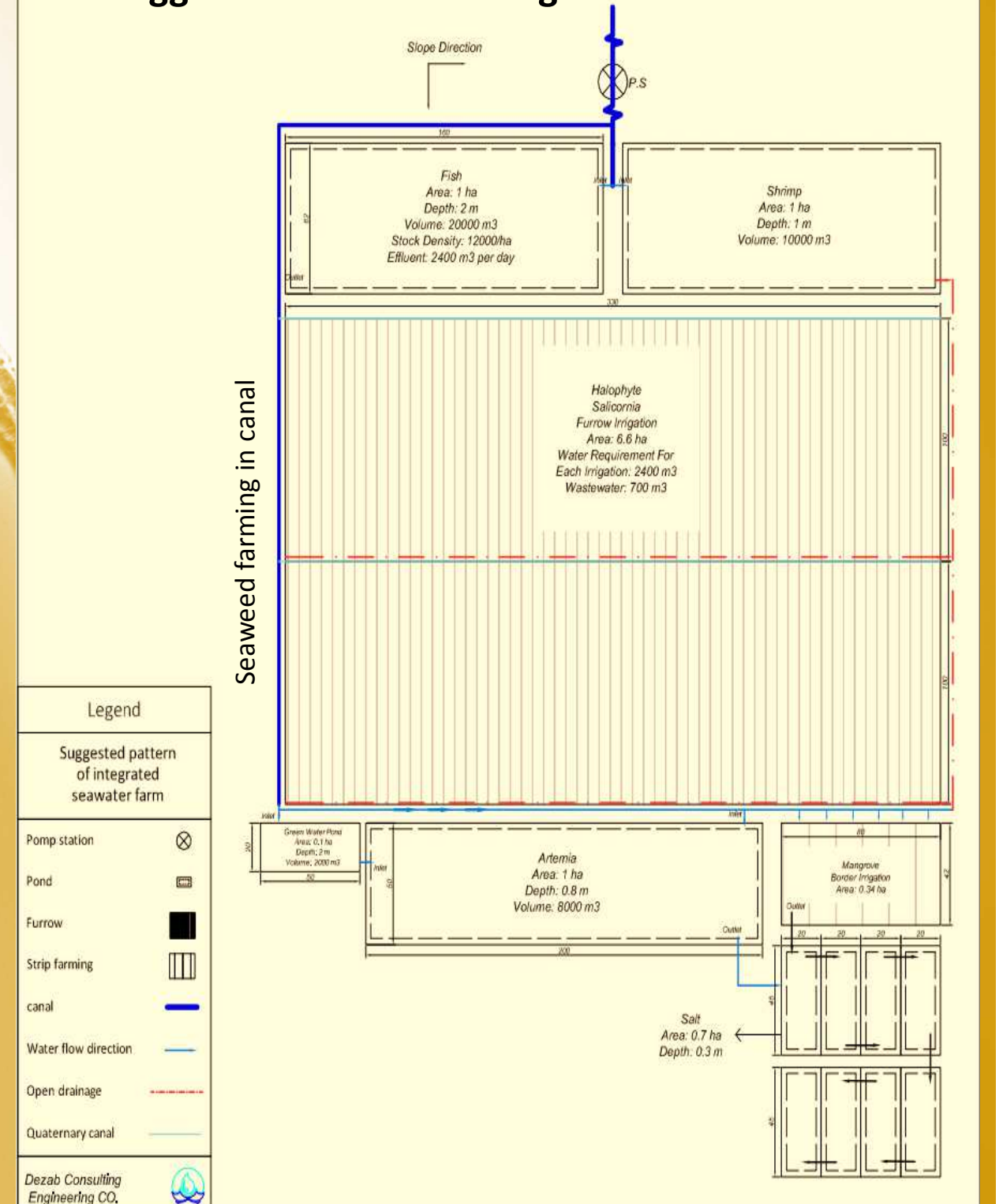
This type of greenhouse uses seawater to cool down and humidify the greenhouse internal space, resulting in less direct freshwater needed for the plants. Seawater greenhouse is suitable for hot and dry coastal regions.

### Conclusion

- 1- Integrated seawater farms including fish and shrimp ponds, brine shrimp, seaweeds, microalgae cultivation, saline farms, mangrove cultivation, and evaporation ponds.
- 2- Seawater greenhouse.



### The Suggested Pattern of Integrated Seawater Farms



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Suitable potentials for integrated  
seawater farms