ZEOlation in Agriculture

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Several countries rely mostly on agriculture. Extensive agriculture using pesticides and herbicides pollutes water. These countries face several problems, such as water pollution, scarcity of water, and the demand to improve agriculture. This project contributes to the purification of polluted water irrigation. Some modifications should be done to purify this water and allow its reuse to see a significant change in these problems. The project proposes the use of zeolite; an adsorbent mineral that can purify water to be reused. In addition to the property of ion ex-changeability, it provides water with some essential nutrients that are useful for the plant and soil. To use this purified water, a self-sufficient greenhouse is constructed. It aims to conserve resources and grow plants in the best conditions that boost the economy. The greenhouse internal system is to guarantee that the crops placed within grow properly. This is accomplished by adjusting all of the conditions that affect plant growth, such as temperature, humidity, soil moisture, and light intensity and duration. To collect information and adjust conditions, a system of specialized sensors is used for each condition to measure and collect data, sort it, and adjust it to the required rate or percentage. All of the procedures are managed by a mobile application that has specialized data and information about each crop and automates the whole system. Therefore, about 95% of the water contaminants are removed by this method. The plants grown inside the system will obtain better conditions ensuring better health and nutritional value.

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