

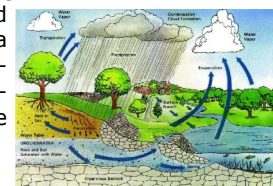


adapt2change

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adapt2change Life+ project overview

Agriculture today faces many challenges. WFD and CAP is pushing agriculture to a more sustainable status by minimizing diffuse pollution and reaching good ecological status. Resource management and food security in a changing environment due to climate change is other issue agriculture has to tackle. By introducing an innovative method of cultivation within a controllable environment, all of these issues may be resolved.



Water cycle

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Unlike field agriculture, which bases production costs on hectares, greenhouse costs are calculated on per square meter of growing area or on a per plant basis. The production costs represent around 70 - 80 % of the total chain costs in greenhouses, being water and energy consumption the main factors affecting those expenses. Project extends the use of greenhouse horticulture by reducing water and energy demand, by recycling water within a close controllable greenhouse in all water phases, liquid and gas. Because the amount of extra energy required to succeed water recycling is enormous, the use of shallow geothermal energy provides not only the amount of required energy but also a cheap renewable source.

Water in a greenhouse plays a very important role. Water is the carrier of nutrients in the hydroponic system and it is used by plants to cool by evapotranspiration. In a greenhouse evapotranspiration by plants is not enough to cool plants so many techniques are used in order to cool the air within a greenhouse. In all of these methods water is sprayed in the greenhouse absorbing heat. From liquid phase water is turned into vapour phase and is rejected because of the higher temperature and thermal energy it carries. As a result growers need to re-compensate this loss by pumping more water to the greenhouse. In this way growers imitate the natural cooling method plants use.

Key points

- Cooperation between Greek and Cypriot partners
- Pilot Actions in Larisa and Lemesos.
- 2.5M euros project budget
- Multi—discipline project

Why it is important to protect Water Resources.

For this project four prototype units will be installed in Larissa Thessaly (Greece) and Lemesos (Cyprus) in order to test and demonstrate the innovative aspects of water recycling. Larissa was selected for the harsh climate, the limited water supply and the fact that is the agricultural center of Greece. During winter temperature drops to -10 Co. During summer temperature exceeds 40 Co. It is worth to mention that the European river basins affected by water scarcity in 2030 were identified using the results from the WaterGAP model under the LREM-E scenario in GIS software. Water on an average, is predominantly abstracted for irrigation covering a range of 0% of total abstraction in Eastern RBD (Ireland) to **98 % in Thessaly RBD (Greece)**.

Cyprus government policy also provides for such demand management measures as the restructuring of agricultural cultivations and the promotion of cultivations which require less water, the promotion of water saving measures, the creation of awareness among the public for the proper use of water, the establishment of subsidies for saving good quality domestic water, the metering of water services and use of rising block-tariffs for domestic water supply, the application of a quota system for the allocation of government irrigation water in combination with penalty charges for over consumption, etc.

