

OPTIMIZATION OF THE WATER CYCLE IMPROVES THE GROUND WATER REGENERATION



Summary

The investigation of the natural water cycle on self sustaining islands regarding climate change impacts is easier than on the mainland, due to an almost closed water system. In times of increasing rates of heavy rain fall events, a rising sea level and periods of water shortage, microcosms such as islands are excellent natural laboratories to find innovative solutions for a well adapted sustainable water management.

The idea emerged to collect overloads of surface water, which put pressure not only on settlements but also on supply and disposal facilities, and drain them in a way that they can have a positive impact on ground-water regeneration. A volitional ecological side-effect is the rewetting of wetlands.

Main Benefits

General aspects

- » Islands are catalysts and microcosms, on which investigations and measures can be implemented and evaluated in a limited area.
- » This solution will meet and substantiate the general desire of communities to become more environmentally sound and sustainable.

- » The management of the water cycle is optimized which has an effect on the regeneration of ground-water (fresh water lens) on the island.
- » The solution is transferable to the mainland.
- » This solution will support and safeguard the principles of sustainable drinking water supply.

Innovative aspects

- » This solution works with nature as opposed to traditional engineering solutions. Research results can easily be implemented in practice.
- » A combination of ground water regeneration and rewetting measures in one implementation process.

Boosters for Implementation

- » Identify funding streams.
- » Find reliable and solvent investor.

Barriers for Further Implementation

- » Financial back-up, find funding or investors which are reliable for implementation.
- » Commitment, the support of all involved stakeholders is essential.
- » Decision makers are dependant and limited by political decision-making processes.
- » Main economic drivers (e.g. tourism on islands) may be assigned a higher priority regarding investments.
- » On account of uncertainties of the value and potential impacts of the developed solution to the involved parties, there is still a lack of support by the involved inhabitants.

How to Get Over Barriers

- » A communication process is necessary, which is tailor-made for the specific target groups. The involved parties have to be convinced by working with different scenarios themselves. The consequences of the “doing nothing solution”, as opposed to the implementation of this management system should be highlighted.
- » Predictions regarding the expected impacts of climate change can also underline the urgency of the implementation. The “doing nothing solution” could cause higher investments and subsequent costs in the future and could have a negative effect on the amount of tourists.
- » Building networks among important decision makers and identifying appropriate funding streams on national and international level will substantiate the process of persuasion.

Policy Recommendations

- » Strengthen sustainable thinking among politicians. Support of adequate innovative and necessary solutions by decision makers. Assume more responsibility!
- » Support the integration of the main economic driver of the island into groundwater management: Groundwater as tourist attraction.
- » Support the combination of groundwater regeneration with other water management activities.
- » Apply scenario-planning on the future groundwater situation.
- » Continue using islands as natural units for testing and developing water management solutions.
- » Create ownership for local projects on groundwater regeneration

More Information

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