

“Το νερό είναι  
η κινητήρια δύναμη  
όλης της φύσης.”

Λεονάρντο Ντα Βίντσι

“A Future with Water”  
English Version

Αστερούσια, Μεσσαρά και ακτές

# Ενα μέλλον για το νερό



Συντάκτης:

Κρητική πρωτοβουλία "Το νερό είναι ζωή"

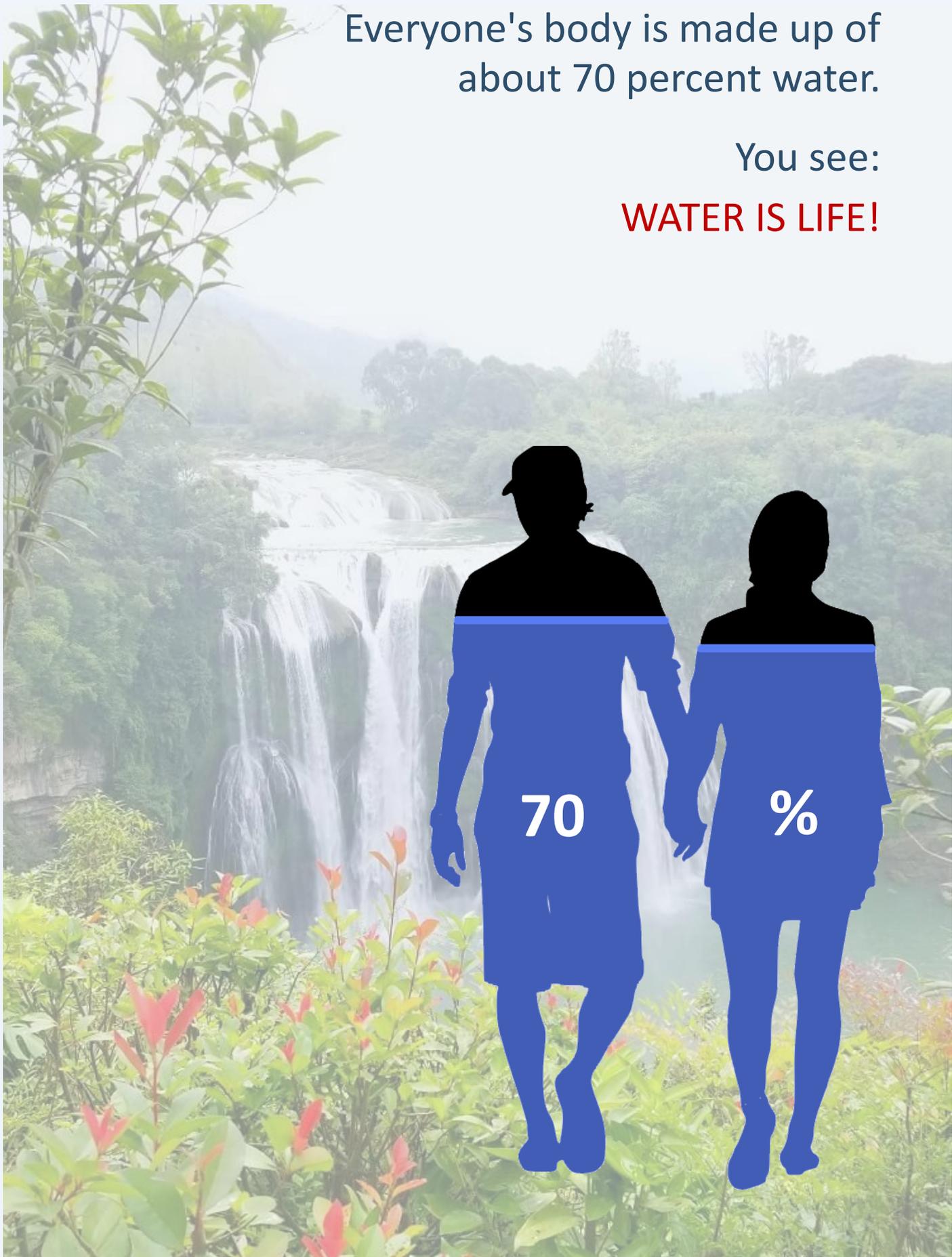
# INTRO

Did you know?

Everyone's body is made up of about 70 percent water.

You see:

**WATER IS LIFE!**



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### Jassas.

This brochure is for all people in the Asterousia region. It is about our most important natural resource: water. What is the actual and future situation with the fresh water supply in our region of Crete? Do we have a problem that needs our immediate attention? This brochure provides you with a lot of information. Beyond that, it invites you to give your opinion. What do you think? What are your “water” experiences and your ideas? There are several possibilities to share your thoughts with us. Find out more in the following pages.

This brochure has been put together and published by three regional associations. These are:

- ΣΩΜΑΤΕΙΟ ΕΘΕΛΟΝΤΩΝ ΠΥΡΟΣΒΕΣΤΩΝ ΚΑΙ ΠΡΟΣΤΑΣΙΑΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ ΑΣΤΕΡΟΥΣΙΩΝ
- ΣΥΛΛΟΓΟΣ ΑΝΑΠΤΥΞΗΣ & ΠΡΟΣΤΑΣΙΑΣ ΟΙΚΙΣΜΟΥ ΤΣΙΓΚΟΥΝΑ
- ΠΟΛΙΤΙΣΤΙΚΟΣ ΣΥΛΛΟΓΟΣ ΜΙΑΜΟΥ ΚΑΙ ΛΕΝΤΑ «Ο ΑΣΚΛΗΠΙΟΣ»

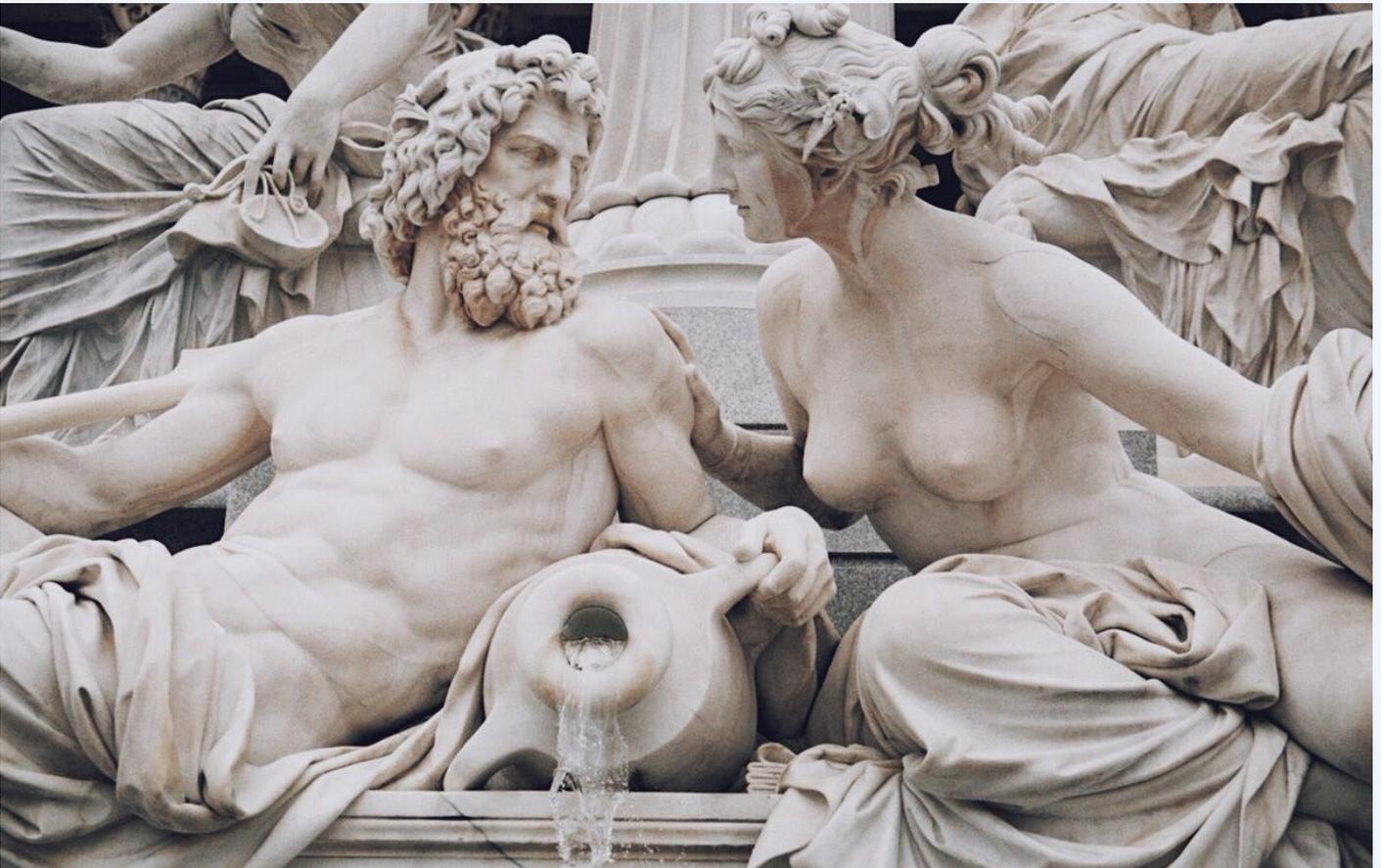
We did it in cooperation with our partner association in Germany MAZI e.V. Many thanks to everyone who helped us create this brochure.

Asterousia, November 2020

## A few words about this brochure ...

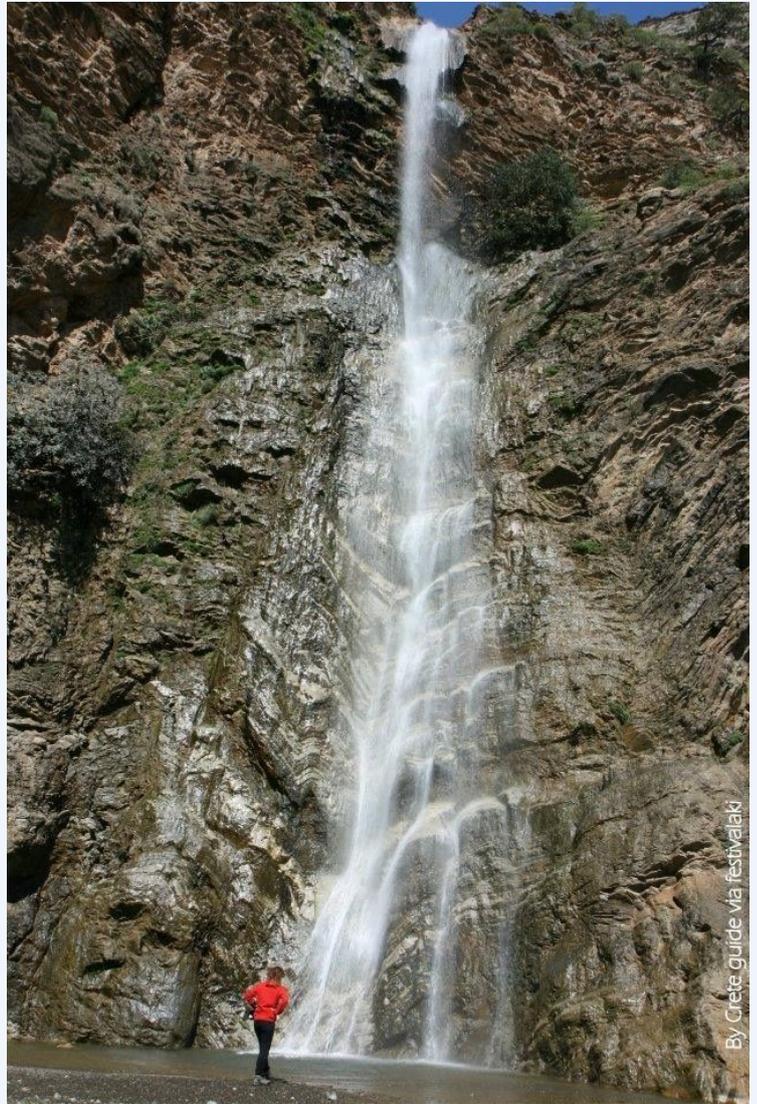
**Looks like Zeus, the King of Gods, doesn't suffer from lack of water/ water shortage on his Olympus.** In any case, the jug in his hand (look at the photo below) does not stop pouring out that precious and refreshing liquid. The good old King of Gods is also surrounded by some pretty women. What more could he wish for, a happy guy! Hard to imagine that Zeus will one day rise from his cozy camp and stop by here near his birthplace.

**In this region from the Messara via the Asterousia to the coast, the water does not bubble so freely.** Or rather: no more. Since time immemorial, the Asterousia Mountains have been the source from which the local residents meet their various water needs. Some of them might think that this will go on forever. But we are not gods. **And we know that a jug needs to be refilled regularly.**



**Achentrías gorge, Asterousia mountains: The water is getting less, even in winter**

**In fact, there are more and more discussions among the residents about water.** You can feel more or less hidden restlessness. There are days, especially in summer, when suddenly the water supply in one or the other village is limited or comes to a complete standstill. In addition, it has to be drilled deeper and deeper into the mountains in order to get the precious good from the groundwater. Sources suddenly dry up, temporarily or entirely.



By Crete guide via festivalaki

**All this makes people think, and that is a good thing. You cannot ignore these facts.**

There are a number of scientific studies on this issue, including those that have been carried out in this region for years. Some people don't know anything about it. Do we have an existential water supply problem or not? This question has been raised by quite a few people.

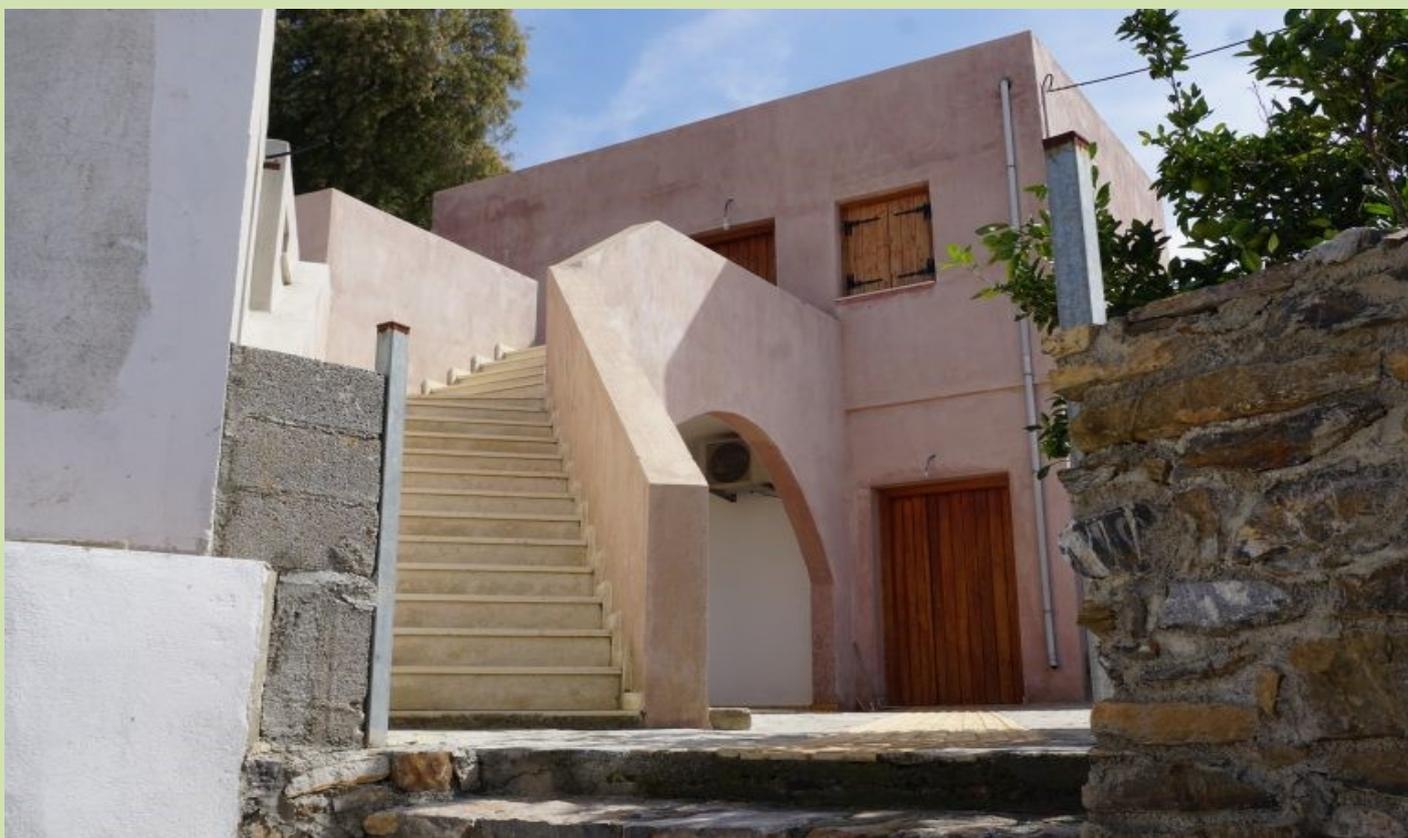
**This is why the working group "A future for Crete" was founded in mid-2019.** The motto of the initiative is: WATER IS LIFE. The founding members include three local non-profit associations and a German association of Crete friends that supports charitable activities in the region. **One of our goals is comprehensive information** - about the scientific studies that have taken place, about the basic possibilities for so-called better water "management". **But it is just as important to us to find out your opinion, your ideas and suggestions.** To make all these facts public, to have an exchange and a joint discussion. **This is why the brochure you hold in your hands was created.**

# POSITIVE APPROACHES IN THE REGION

The Volunteer Firefighters Asterousia, the Tsigounas Association and the Cultural Association of Miamou/Lentas have been working successfully for decades in the Asterousia Mountains and Crete's southern coast. These groups have also begun building relationships with other community organizations in the Messara Plain. Since summer 2018, this cooperation has grown through the new MAZI network based in Germany. MAZI's aim is to support cooperation across borders by participating and supporting community activities on Crete.

In 2019, these four organizations have founded the Working Group "A Future for Crete". The intention has been to push the project "Water is Life", facing the dangerous decrease in freshwater reserves in the Asterousia.





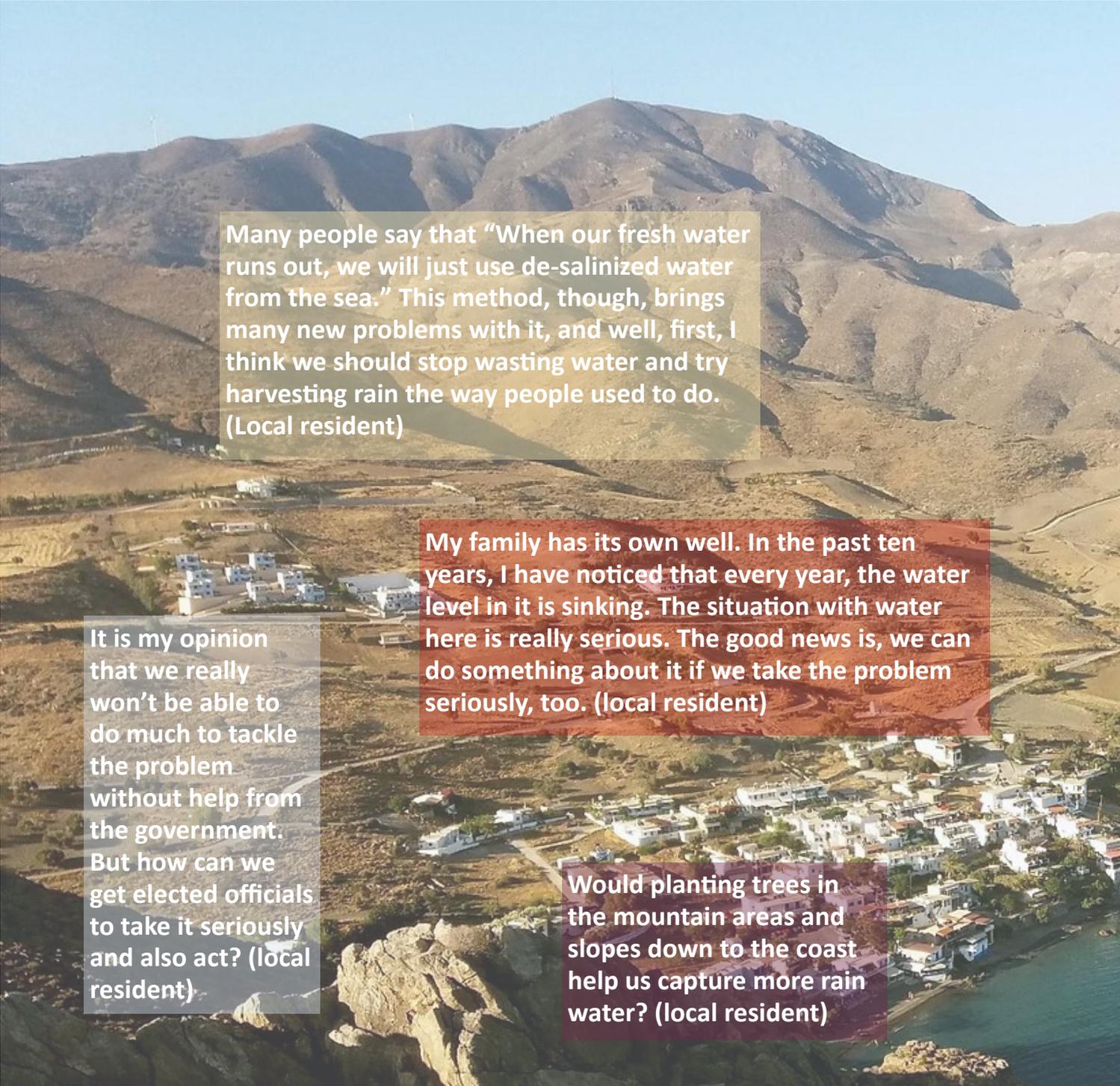
Those in charge benefit from a variety of activities that they have carried out in their work as non-profit organizations. Specifically, these include: consistent repair of defective water distributors and pipes as well as cisterns; reducing water consumption in agriculture, tourism and private households; first attempts to collect rainwater in order to relieve the use of groundwater reserves; measures against the increased risk of fire due to lack of water and dehydration and more. The experiences have been entirely positive and should be communicated in the region.

It is also gratifying that quite a few people in the surrounding villages have thought about the water problem themselves. And even if this has resulted in only small changes in everyday behaviour it is an important first step and, in total, certainly noticeable and effective.

It is obvious that action must be taken. We must discuss which actions need to be taken first – and do this together in this region and with a view to finding a collective approach to solving this existential problem. Trying to tackle the problem alone, or with an “everyone for themselves” attitude will not work. That is because there are too many important issues to consider – and no one can solve this problem on their own.

# What people in the region say ...

A few quotes from people in this region on the water issue that were uttered in various conversations with us. We just reproduce them here, partly in abbreviated form and of course without names.

An aerial photograph of a coastal town and surrounding mountains. The town is built on a hillside, with white buildings and a few trees. The mountains are brown and rocky, with some wind turbines visible on the peaks. The sea is visible in the bottom right corner. Three text boxes are overlaid on the image, each containing a quote from a local resident.

Many people say that “When our fresh water runs out, we will just use de-salinized water from the sea.” This method, though, brings many new problems with it, and well, first, I think we should stop wasting water and try harvesting rain the way people used to do. (Local resident)

My family has its own well. In the past ten years, I have noticed that every year, the water level in it is sinking. The situation with water here is really serious. The good news is, we can do something about it if we take the problem seriously, too. (local resident)

It is my opinion that we really won't be able to do much to tackle the problem without help from the government. But how can we get elected officials to take it seriously and also act? (local resident)

Would planting trees in the mountain areas and slopes down to the coast help us capture more rain water? (local resident)

**I often see broken water pipes and hoses and water is just running down the streets or riverbeds – sometimes, for days and days. If I knew who the pipe/hose belonged to, I would contact them about repairing it. (foreign resident)**

**I never really thought much about “where water comes from” before. Since I realized our supply on Crete is running out, I try to save as much water as I can. (tourist)**

**I feel like every drop of water is precious and I must protect it. (a holiday home owner.)**

**On average, our area gets about 500 ml of rain per square meter per year. This hasn't changed much. What has changed is: We are using a lot more water these days. (local resident)**

**I think there are so many things we can do – the question is, will we? One person acting alone doesn't help much. After a hard rain here, I always look at the muddy sea and think, it's such a pity we are not catching all that fresh water – instead of wasting it. (Local resident)**

**I sometimes think we must return to some of ways our ancestors cared for water. For example, I remember my grandfather always making terraces on his fields out of stones to catch the rain. (local resident)**

# WHAT IS THE SITUATION LIKE?

## Some introductory remarks:

In this first chapter we would like to give a brief overview:

What do scientific studies say about a possible water problem in the region?

How have politicians and administrators acted or reacted to this in the past?

What impact is climate change already having on the problem?

How can this develop in the future?

In Part 2 below, we are interested in your own observations and opinions.



## A short journey into the past

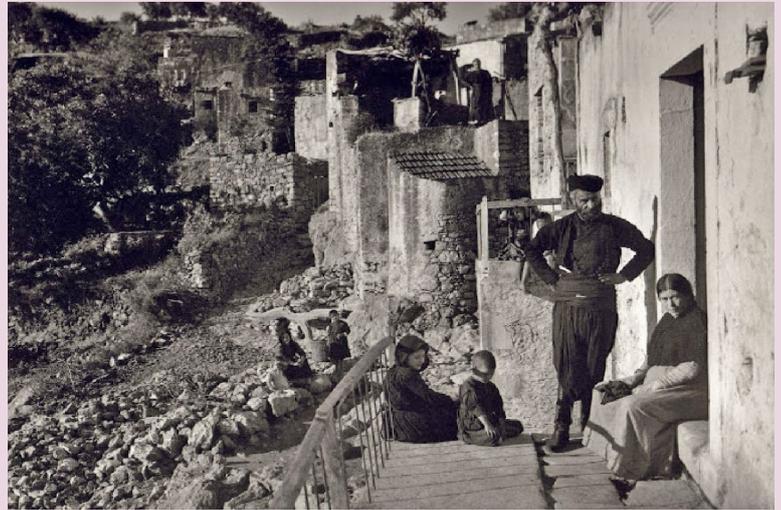
**From the 1950s to the early 1970s**, cereal, fruit and vegetable production dominated in open field cultivation in the Messara. In the Asterousia there was predominantly cattle breeding, which could be considered sustainable and did not overuse the existing pastures. In winter, the herds were kept on areas in the Messara. For the most part, cattle feed was supplied through domestic agriculture. The general level of education was rather low, but there was considerable knowledge of the direct environment and one's own craft.

**From the mid-1960s**, the first negative effects of intensification and specialization in agriculture could be felt. At the same time, residents were migrating. Tourism and industrialization (in the north of the island and abroad) offered new, more attractive jobs.

**At the beginning of the 1970s**, the cultivation of cereals and vegetables on the plain was gradually being replaced by olive groves. In the Asterousia, cattle breeding could only be continued by



Tomorrow?



### Older documents from plain and mountains

importing feed (some from abroad). However, the increased crop production worldwide made it affordable, the availability of trucks and the spread of road networks made transportation possible. The (animal) cattle population was even growing. As a result of the changes in the Messara it was no longer possible to keep the cattle there in winter. Therefore, the breeds were being adapted to the mountain area.

**In the mid-1980s**, the introduction of agricultural subsidies marked another step/ had a fundamental impact. The size of the herds increased again, the red tolerance line (1 animal per hectare) was exceeded for the first time. At the same time, cattle breeders became dependent on the cattle feed industry. Advanced industrialization and growth in the tourism industry led to further brain drain. This was offset by the cheap labour of foreign migrants **in the early 1990s**. This process is continuing to this day.

Another landmark was **Greece's accession to the EU**. GAT subsidies and other financial aid led to an explosion of greenhouse cultivation that had started long before. With the per capita subsidies (CAP) that had already been introduced, the number of livestock was increasing again rapidly. This happened entirely at the expense of the rather barren mountains. Domestic agriculture and cattle breeding had coupled for some time and developed in opposing directions.

Sources: LEDDRA research - K. Damianakis, D. Psarras, E. Stylianiou (2014)

Costas Kosmas & Vassilis Detsis & Mina Karamesouti & Kate Kounalaki & Penny Vassiliou & Luca Salvati, 2015: "Exploring Long-Term Impact of Grazing Management on Land Degradation in the Socio-Ecological System of Asteroussia Mountains, Greece

# The results of this development

We have summarized the results of the LEDDRA study here. It is important to know that compared to other regions on Crete, the Asterousia has always been characterized by greater barrenness. In this respect it has been a priori more sensitive to undesirable developments.

## MESSARA

- Soil erosion
- Ground water and environmental pollution
- Water stress / Seasonal water scarcity
- Monocultures
- Loss of biodiversity
- Abandonment of cattle feed production
- Generally decoupling from animal husbandry
- Explosion of greenhouses with negative consequences
- Dependence on fertilizer manufacturers and markets in general

## ASTEROUSIA

- Soil erosion
- Land desertification
- Extreme overgrazing
- Big loss of biodiversity
- Almost complete abandonment of traditional mountain farming
- Replacement with olive monocultures
- Seasonal extreme water stress
- Explosion of greenhouses with negative consequences (coastal areas)
- Dependence on cattle feed manufacturers and markets in general



### The LEDDRA research to water problems and more

In addition to regions in China, Africa and other European regions, a comprehensive global study spanning several years also targeted the Messara / Asterousia region. This documents how explosive /strained the situation here might already be. The results were published in mid-2014.

The following persons were responsible for the investigations in the Cretan region:

Prof. Helen Briassoulis (LEDDRA project coordinator, University of the Aegean)

Prof. Costas Kosmas (Agricultural University of Athens)

# The role of politics and administration



A lonely flowering plant in a large desert

>>> **Water policy** is mainly focussed on Messara. Until 2010 there were water monitoring programmes also covering water use and water works licenses. Reservoir construction and other public works have temporarily been carried out since 1999. At times there was also a ban on new groundwater drilling. However, local or regional water management plans are missing. There are no inspections, fines and other sanctions, no data collection (administrative policy), no nitrate pollution prevention, no general cost recovery.

>>> **Spatial planning policy:** There is a „Regional Framework for Spatial Planning of Crete“ (2003) which identifies Messara and Asterousia as "an area with significant natural and cultural capital". But: National Frameworks conflict with sectoral frameworks. Further, a general laissez-faire attitude and licensing on ad-hoc basis have to be criticized. Lack of any containment through spatial planning undermines all environmental issues. The link between spatial planning and rural development policy is very weak, despite the importance of the agricultural sector. Last but not least regional policy (incentives for tourism, road construction etc.) drives land-use change.

>>> **Biodiversity policy:** This is LEDDRA’s main point of criticism. We will not go into more detail, since political activities are a labyrinth of half-baked regulations and omitted measures.

**Source: LEDDRA research - K. Damianakis, D. Psarras, E. Stylianou (2014)**

# Climate change



In May 2020 there were several days with/ when temperatures reached 40 degrees in this region.

This is difficult to endure and also not considered “normal”, in the sense that has been known for decades and longer. Climate change has arrived in Crete. **And it will remain for the time being. It is a long process to change this around.**

In short, the area of the eastern Mediterranean, as many studies show, is even more affected by global warming than the western part. Why? Because the Atlantic does not have a moderating influence here. The heat arrives unabated from Africa via Libya. **A study by Greek meteorologists and other scientists states that the local economy will suffer a lot.** This affects primarily agriculture and tourism on this island. The temperatures are rising, the winter rain is subsiding considerably. Here a quote from the study:

“In coastal regions, increased temperatures - especially at night in combination with high levels of relative humidity - can lead to **conditions that are nothing less than uncomfortable for foreigners and the local population.**”

And neither for agriculture. Christos Giannakopoulos, one of the authors of the study, has therefore set up the **ADAPT2CLIMA project** with other scientists. In Crete, among other things, this helps farmers to adapt to changing climate conditions.



Sources: Christos Giannakopoulos • Effie Kostopoulou • Konstantinos V. Varotsos • Kostas Tziotziou • Achilleas Plitharas - An integrated assessment of climate change impacts for Greece in the near future

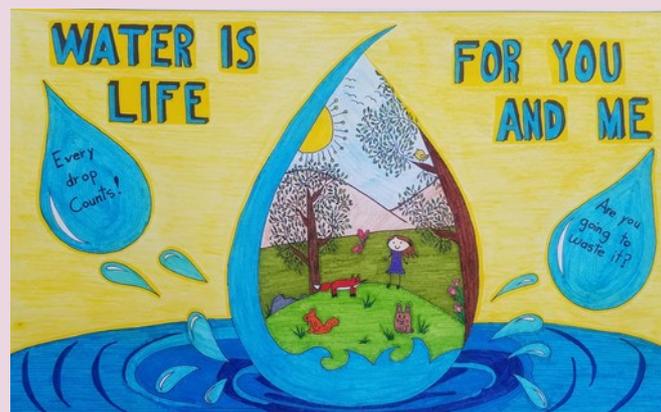


## THE TSIGOUNAS STUDY - A COASTAL VILLAGE UNDER THE MAGNIFYING GLASS

**Fifteen years ago**, the association in Tsigounas carried out a study in cooperation with a Swiss university about the amount of water village farmers needed for their crops. Because of the region's hot, dry climate, farming is only possible with extensive additional irrigation. As more and more greenhouses were built over the years, the need for water had increased, too. At times, almost 80 % of the water used in the community was for agriculture. Already in the year 2000, other studies had shown: Groundwater reserves in the region were decreasing significantly. The prognosis: If action was not taken and the water level continued to decline, seawater would flow into the underground, coastal aquifers within a few decades.

**The pre-study situation.** The water Tsigounas needs comes from the Asterousia mountains behind the village. These mountains are the region's "water tank." When the study began, the mostly privately owned wells to the aquifers already had to be drilled deeper and deeper. There were also repeated bottlenecks in the water supply. The twelve farmers interviewed for the study had not thought much before the study about the finiteness of the water reserves. When water was scarce, they had usually felt like this was because of technical problems. They also had not considered how much water was being "lost" during the transfer route from the wells to their plants and animals (open/defective cisterns and pipes). According to the study, this water loss amount was on average 45% of the total output. Further, most of the farmers were not using the ancient, traditional practice of collecting rain water during the wet season, and irrigating their plants with it. The majority of the farmers said they did not have the time or the money to collect and utilize rain water. Finally, the kinds of irrigation systems the farmers did have in place needed excessive water. The study results showed: Using more modern, effective irrigation techniques would save lots of water.

**Post-study:** Meanwhile, some things have changed. There is more about some of the causes of water shortages/waste and the existing water problem. The study showed that by implementing various water-saving measures and collecting and using rainwater, the groundwater consumption can be reduced by 70%. However, the study also specifically said that for real change to happen, the village farmers needed to cooperate more and work together. There is also a need for expanding the knowledge about water saving methods and for outside financial support to implement these. Additional direct subsidies for the water saving tools are urgently needed. Here once again, these are challenges for policy and administration at the local, regional, and national levels.



## Final summary

The question is: are all these scientists right? If they do their job as well as we do as farmers, cattle breeders, tavern or kafenion owners or any other profession, then we actually have a problem. A problem that should be solved together in any case because there is no other way. And politics and administration should also take responsibility.

The years since 2010 have also brought a lot of other problems. The debt crisis, the many requirements that the Troika imposed on the Greeks, which have for the most part made the situation worse. Many of us have struggled to survive - and are still struggling. Often, we do not have much time left for other thoughts and activities.

But there is one thing that also emerged from the LEDDRA investigation: If the groundwater level in the Asterousia Mountains continues to fall, there is a risk that the seawater will eventually break into the underground caves. That would be the irrevocable end of life in this region as we know it - and also love it!

## YOUR OPINION

**You have just been reading about the LEDDRA-research and other examinations.**

A man with short dark hair, wearing a white polo shirt, is pointing his right index finger directly at the viewer. He has a serious expression and his left arm is crossed over his chest. The background is a plain, light-colored wall.

**A first question:**

**What do you think is the situation like in your home region?**

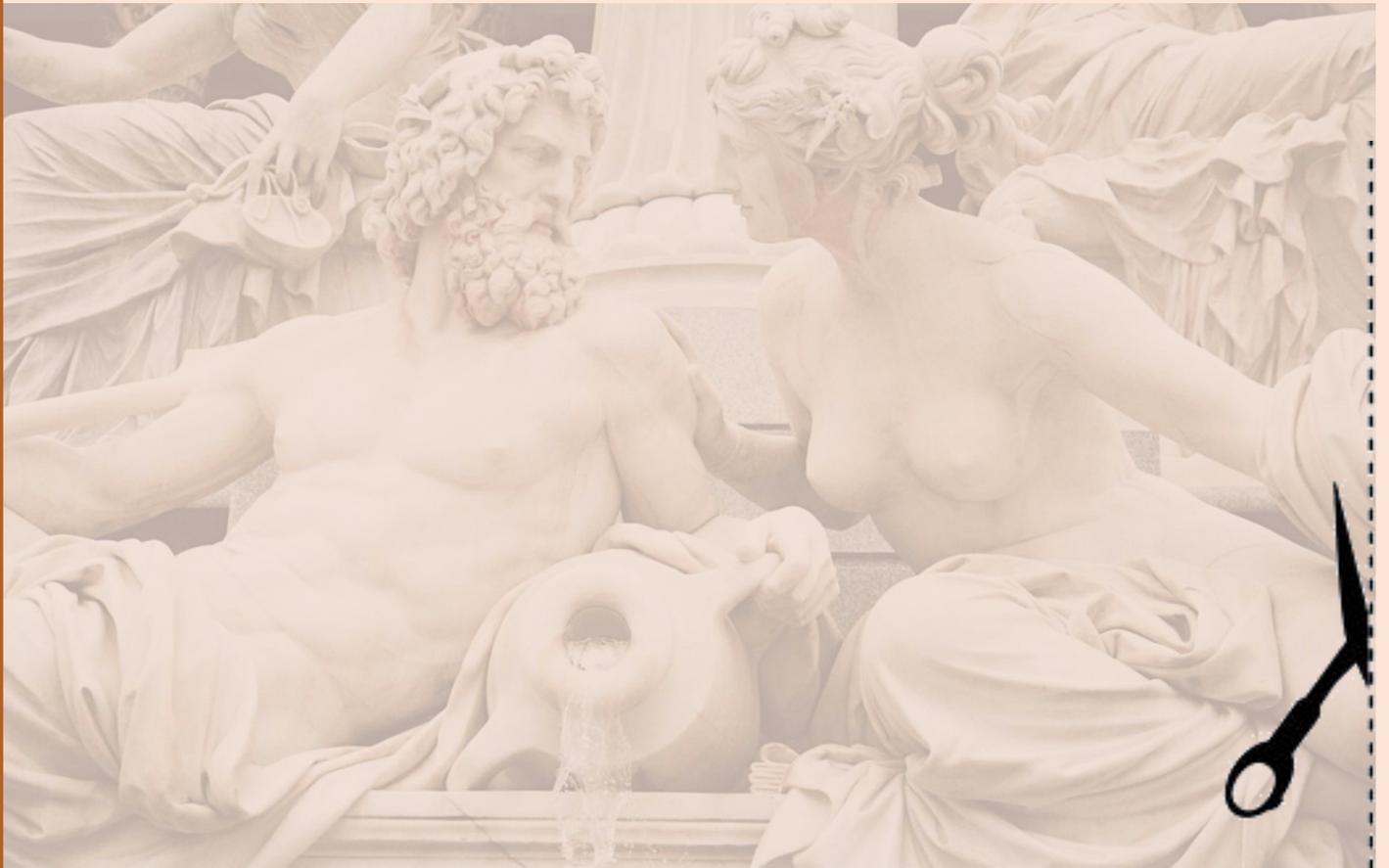
- Is everything still okay with the availability of water at the moment?
- May there soon be a dangerous | water shortage?
- Or do you already have big problems today?

You may also write down your opinion here. Then cut the page and put it in one of our boxes in the different tavernas or kafenions in this region. Or you send an e-mail to **info-wil@online.de**. We will collect your statements and then publish them. You don't have to add your name, but it would be nice to be able to contact you.

**info-wil@online.de**



More place for your statements:





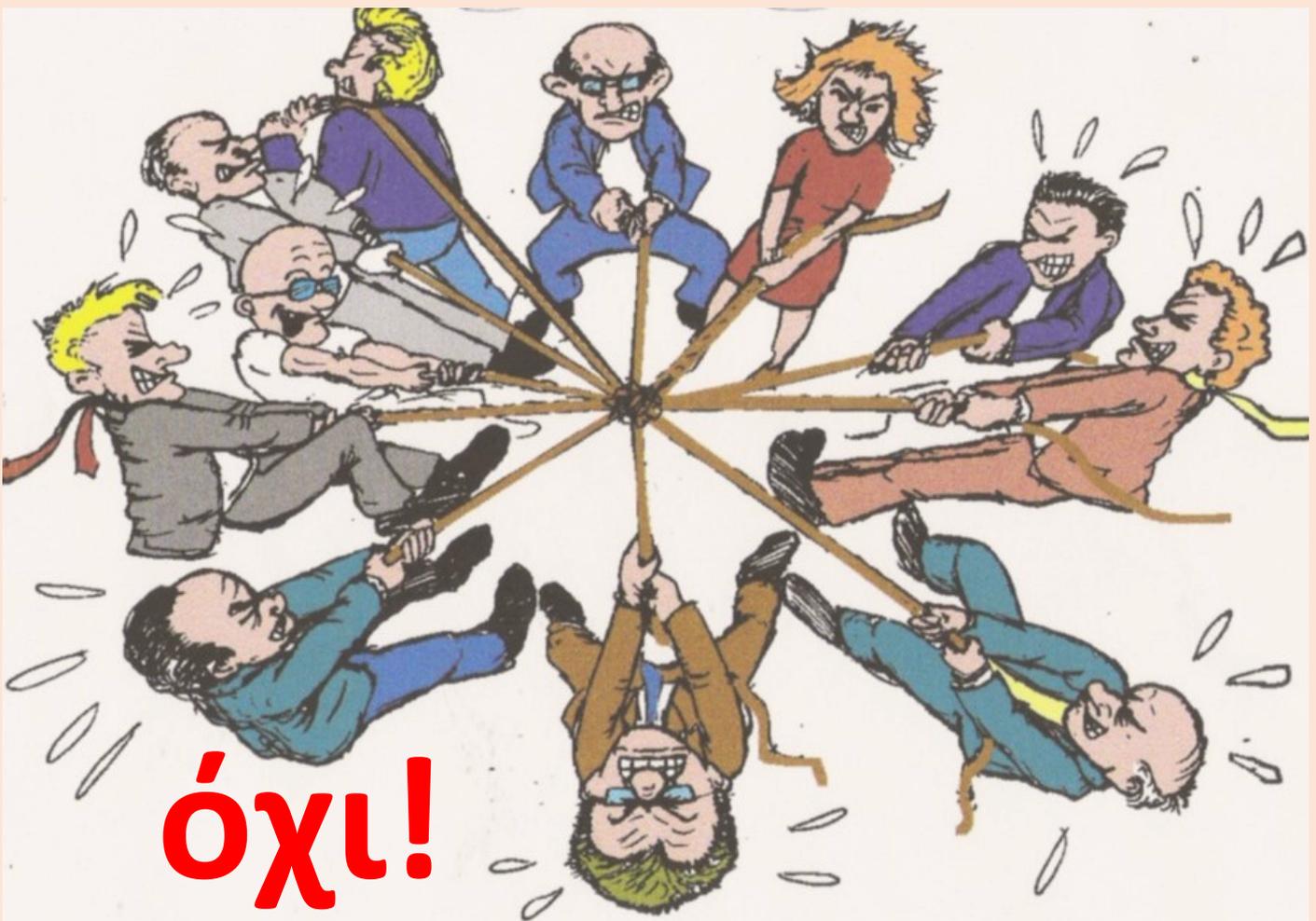
**Asterousia, the water tank  
of the region.**



By the way:

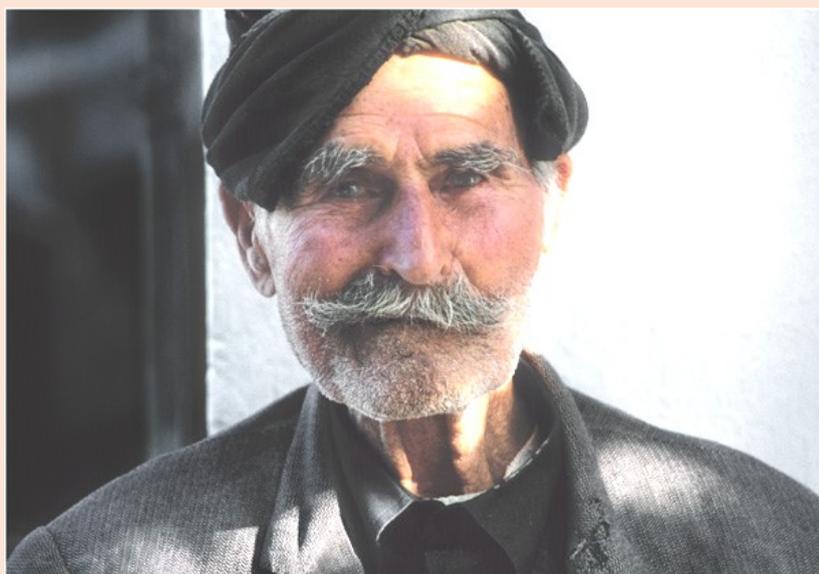
**One guy from the Asterousia said:**

„People always have differing opinions. This is what makes solutions so difficult. “



**We believe:**

Different opinions are not an obstacle. On the contrary, they represent diversity and wealth. Some roads do lead to Rome in the end.



### **Grandpa Nikos says:**

“Isn't it better to find answers than to keep asking new questions all the time?

And maybe it's not so important to say who should do this or that, but how it can be done.

Or even better: how we can do it together. “

### **We should really think about this!**

There is a water problem. Most of the people in the region have had their own experience with it. And the groundwater reserves in the Asterousia Mountains are becoming less and less. In today's conditions, the winter rain can no longer fill them up.

### **So what to do?**

The good thing is that there are solutions. Which have been successfully used elsewhere in Greece and around the world.

# POSSIBLE SOLUTIONS

## Let's listen to a guy from Austria

„Water is life and must therefore be treated with great care. This is why I try to keep water (whether it is rainwater, spring water or surface runoff) on my land for as long as possible.

Nature is always right. We are deceiving ourselves if we disregard the laws of nature.

The most important thing is to understand nature and not to fight it. Fear is the worst companion in life. If I'm scared, I feel haunted my whole life.“



**Sepp Holzer** (78 years old), an Austrian farmer and a worldwide specialist for water management

## Let's make a little journey

**Tamera in Portugal is a particularly good example for successful water management:** The topography, nature and climate are similar to Crete. And there were big problems due to water shortage in the past. In 2005 Sepp Holzer developed his plan to permanently solve the critical situation. Here are pictures who show the same region before and after the work:



The first and very important measure was **to collect the vast amounts of rainwater falling during the rainy period** as a reserve for the hot season. A big lake like in Tamera may be created or smaller reservoirs like here in Greece (following photo):

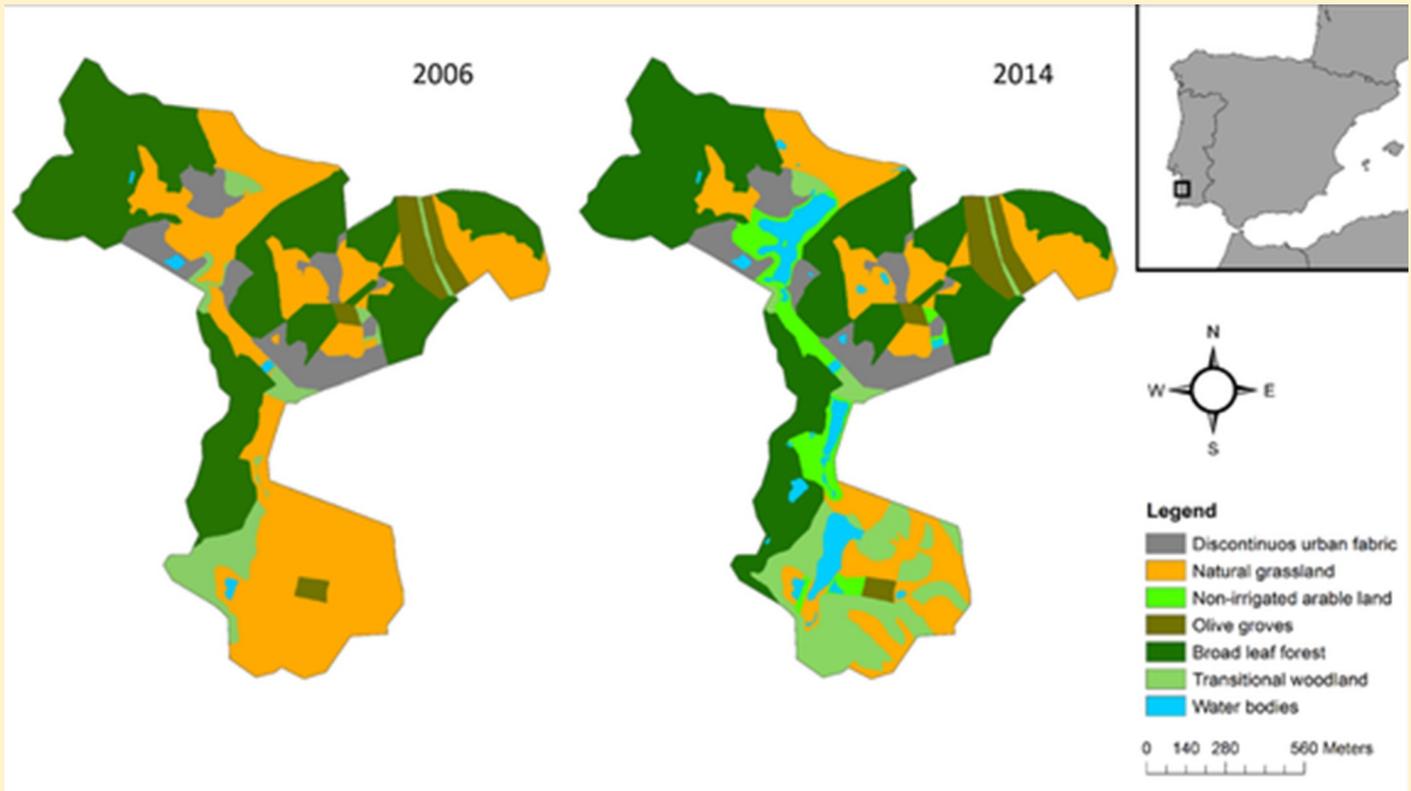


You only need the deepest point of a certain landscape, a little valley, or a crater-like depression in the topography - a water hole, so to say.

Here are **some other 'before and after pictures'** from different projects Sepp Holzer has carried out all over the world:



This method is called „**Water Retention Landscape**“. Here you see a graph / an illustration about the positive changes in Tamera within a



„Water Retention Landscape“ is a very useful and sensible basic. But there are other measures which should go together with this:

- Fighting the decline in plant diversity
- Reforestation
- Enabling infiltration to fill up the groundwater
- Reduction of water consumption in agriculture´
- Reduction of water consumption in private households and businesses
- Reduction of water loss by defect cisterns, pipes and other technical equipment
- Adapted cattle breeding

We will have a short look at all these measures on the following pages.



## Every journey begins with a first step.

However, it is sometimes better to embark on the journey together. This can make things easier to achieve your goal. Sometimes you just need cooperation and mutual support. Together we are strong - it's an old experience. But now let's look at the individual stages of our journey:

### Use rainwater

We have already mentioned the „Water Retention Landscape“. There are some more possibilities to use rainwater.

#### >>> Direct use of rainfall during the rainy season:

You know that rainwater runs down the mountains and hills. Collect it in such places for your autumn and winter vegetables, for example for your self-sufficiency. It is very easy and costs nothing - except a little work. The principle is to alternate small trenches and small mounds of earth.



## >>> Use of rainwater for greenhouses and other buildings:

Collect the rainwater during the winter season from the roofs of your greenhouses and use it for watering the plants in it. The same method is also very effective for other buildings and the water can be used for other purposes. You have to make a small initial investment, but it quickly pays off, as calculations have shown. And it relieves nature and the groundwater reserves.



## Enable Infiltration

### >>> Make the rainwater slow:

This is the principle: Make the rainwater slow when it runs down the mountains and hills. In this way, there is enough time for it to infiltrate the ground and replenish the groundwater reservoirs. This method is ancient and a proven tradition that you surely know. You can create terraces (on which you can also grow plants), small walls and ditches, holes in the ground.



Remember what Sepp Holzer, the pope of water management, said: „I try to keep water (whether it is rain water, spring water or surface runoff) on my land for as long as possible.“

## Restore plant diversity / Reforestation

### >>> Help nature and make the soil better:

The LEDDRA study has shown: The soil in the Asterousia region is eroded, desertification (the landscape becoming a desert) is spreading increasingly. Various factors have led to an extreme decline in plant diversity. This way, good planting soil is washed away and rainwater doesn't infiltrate. However, these areas can be easily revived. All you need is different plants that support each other. Then nature does its work on its own. There are also certain types of trees which can be planted everywhere. They provide shade for the other plants and also loosen the soil up even in the deeper layers. All of this has the effect that rainwater can seep in again and fill up the groundwater reserves.



**Before and after:** An example for plant diversity and reforestation from otherwise in Greece

### >>> Industrial hemp production:

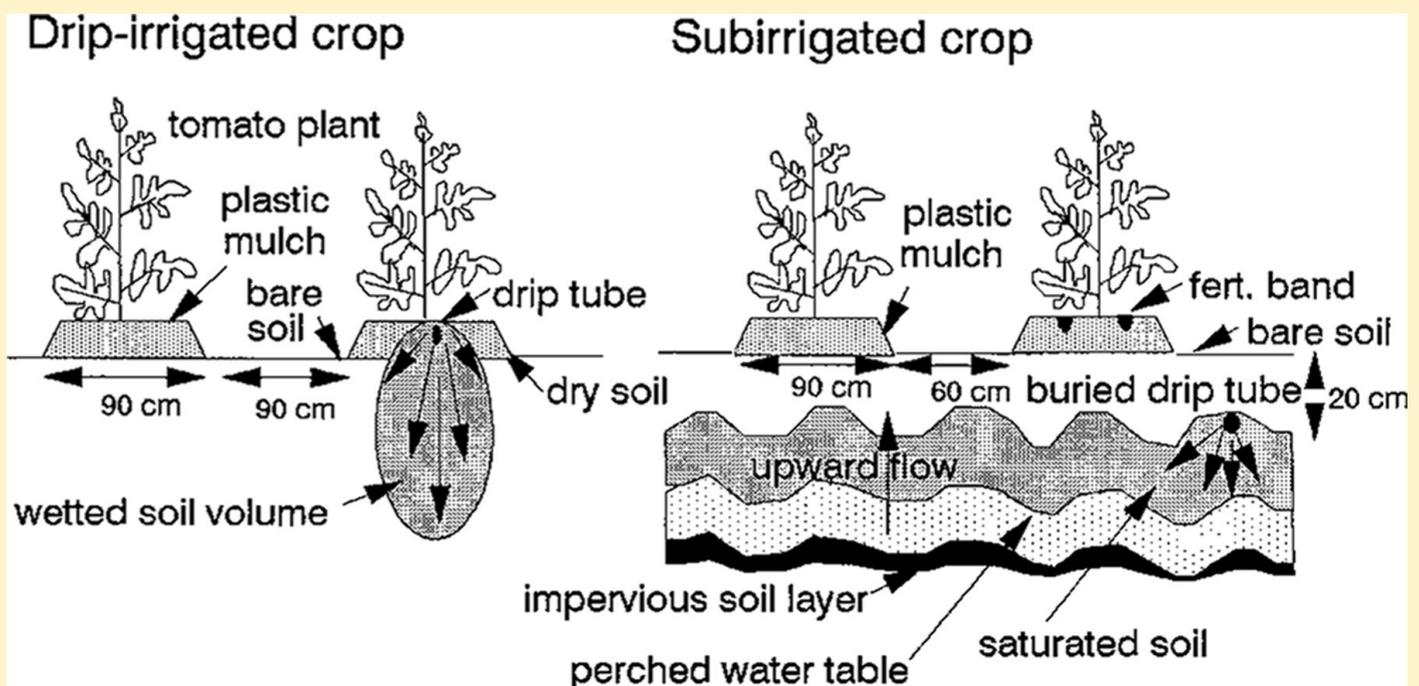
It is a magic plant: Industrial hemp. It has nothing to do with the basic plant for the drug, but is a relative without an intoxicating effect. The advantages are impressive: little effort, little water required, easy harvesting, versatile use and extremely good for the soil. It can be used for products like clothing, accessories, health and wellness, ropes, furniture and much more. Since 2019 it has been allowed to use it in agriculture in Greece.



## Reduction of water consumption

### >>> In agriculture:

Drip or trickle greenhouse irrigation systems work best for most vegetables and plants. Drip irrigation, for example, can increase production anywhere from 20 to 90 percent and by delivering water and nutrients right to the root, can conserve 50 to 70 percent more water than other more traditional forms of irrigation. Similarly, subirrigation systems like trough systems, flood benches and flood floors can also increase production while often using 50 percent less water and fertilizer than conventional irrigating systems by recirculating the nutrient-rich water. In some cases, this involves a little more investment, but it pays off in the medium to long term – and it protects nature and resources. We have already discussed the additional use of rainwater. This should be standard.



### >>> In private household:

Don't use water to clean the terrace, stairs and paths in front of the house, especially in summer - or only if absolutely necessary. Leaking toilet flushes or taps waste an incredible amount of water. Always repair them immediately! Do not wash dishes under running water, but in a filled basin or in a bowl. The same goes for hand washing

clothes. Shower only once a day. Avoid long showers, every minute up to 20 litres of fresh drinking water can rush into the drain. Even when brushing your teeth, only turn on the tap to rinse the mouth out. Water is life and every drop is precious. If everyone adheres to these rules, much of this precious good will be saved.



### >>> In tourism:

Basically, everything that has been said for private households also applies here. In addition, [to the room rental:] towels do not have to be changed every day. This avoids unnecessary washing and conserves water. Bed linen can also be used for several days or even a week if it is not too hot. This also saves water and detergent. Explain to your guests that water is scarce in the region, especially in the summer



months. It is certainly not necessary to take a shower several times a day. It can often take a while to reach the desired water temperature. The shower water running before should be collected in a bucket. It can then be used for plants or for cleaning. For restaurants, tavernas and kafenions: an ecological dishwasher will use water very sparingly. It also makes everyday work easier.

## Care for water systems

### >>> A special problem:

The water loss due to defective supply systems is still immense in farming practise. It is estimated that 25 percent up to 30 percent of stock drinking water is lost due to leakage of pipes or ill-fitting connections. Above-ground pipes, often found in the region, are particularly sensitive to damage. In addition, poor quality water lines and connections are more likely to split and leak. Too often there is a lack of regular checks and maintenance of the water troughs. Fast leaks usually are noticed immediately and fixed quickly while small leaks can often go undetected for a long time. The ideal would be a central registration location, where the region's residents can report any irregularities that they have noticed. Generally, leak prevention is much more cost-effective than paying for lost water, which is a precious good.



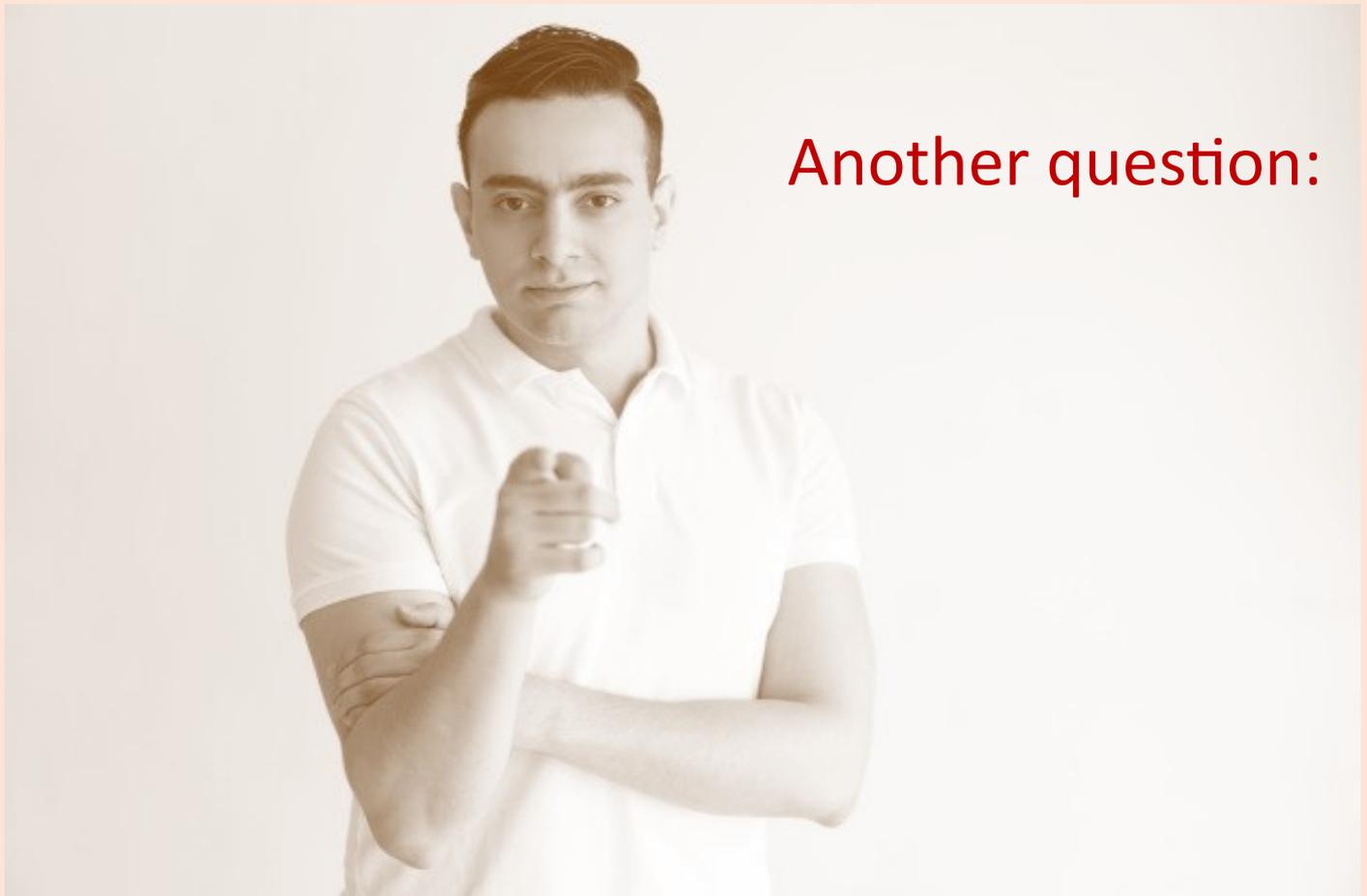
**And please always remember:  
Even many small steps result in a big one.  
You just have to start.**



Traditional collecting of rainwater

## YOUR IDEAS AND SUGGESTIONS

**You have just been reading about some methods of water management.**



**Another question:**

**What do you think by yourself what could be done more?**

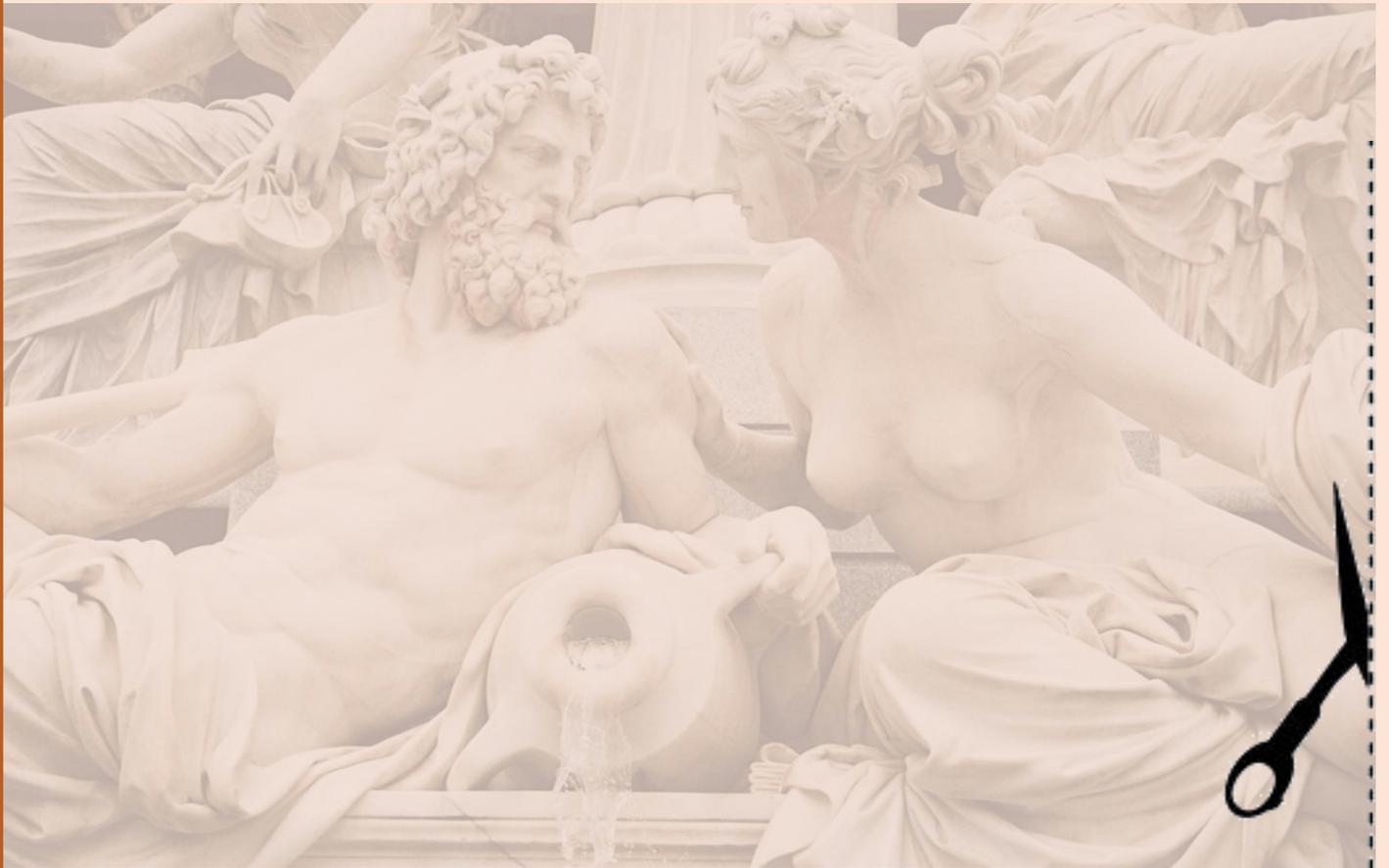
- Do you have own experiences with comparable activities?
- Do you apply one or the other of the measures presented here yourself?
- Or are you satisfied with how it is?

You may also write down your ideas here. Then cut the page and put it in one of our boxes in the different tavernas or kafenions in this region. Or you send an e-mail to **info-wil@online.de**. We will collect your statements and then publish them. You don't have to add your name, but it would be nice to be able to contact you.

**info-wil@online.de**

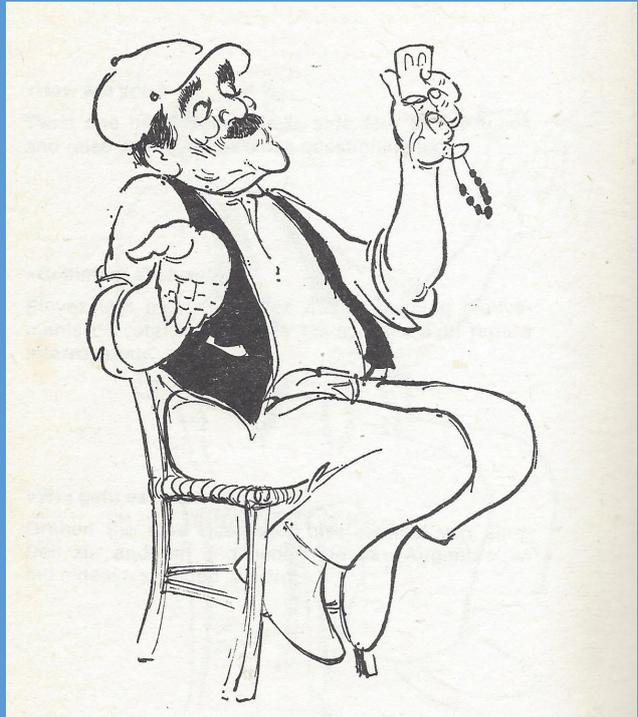
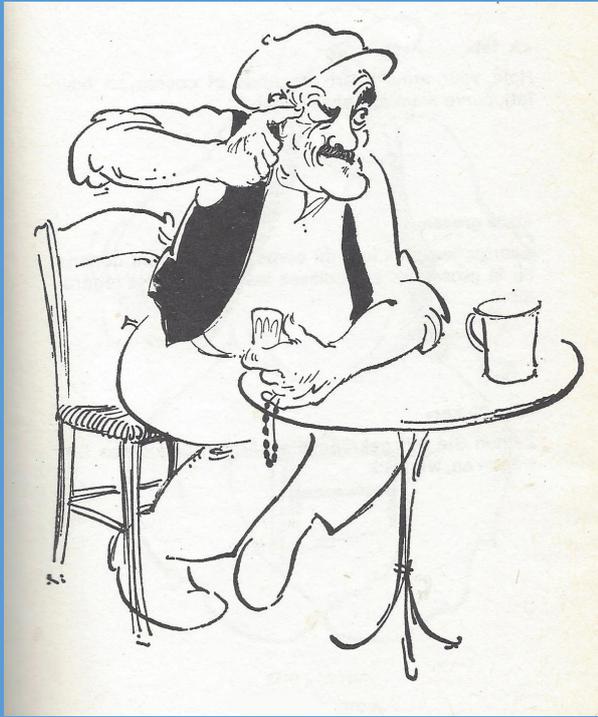


More place for your statements:



**Existing permaculture in Greece: Plants in the right mixture shelter and help themselves. Work gets less, the yields get better and healthier. And you save a lot of water!**





To think about the subject and get the right solutions.

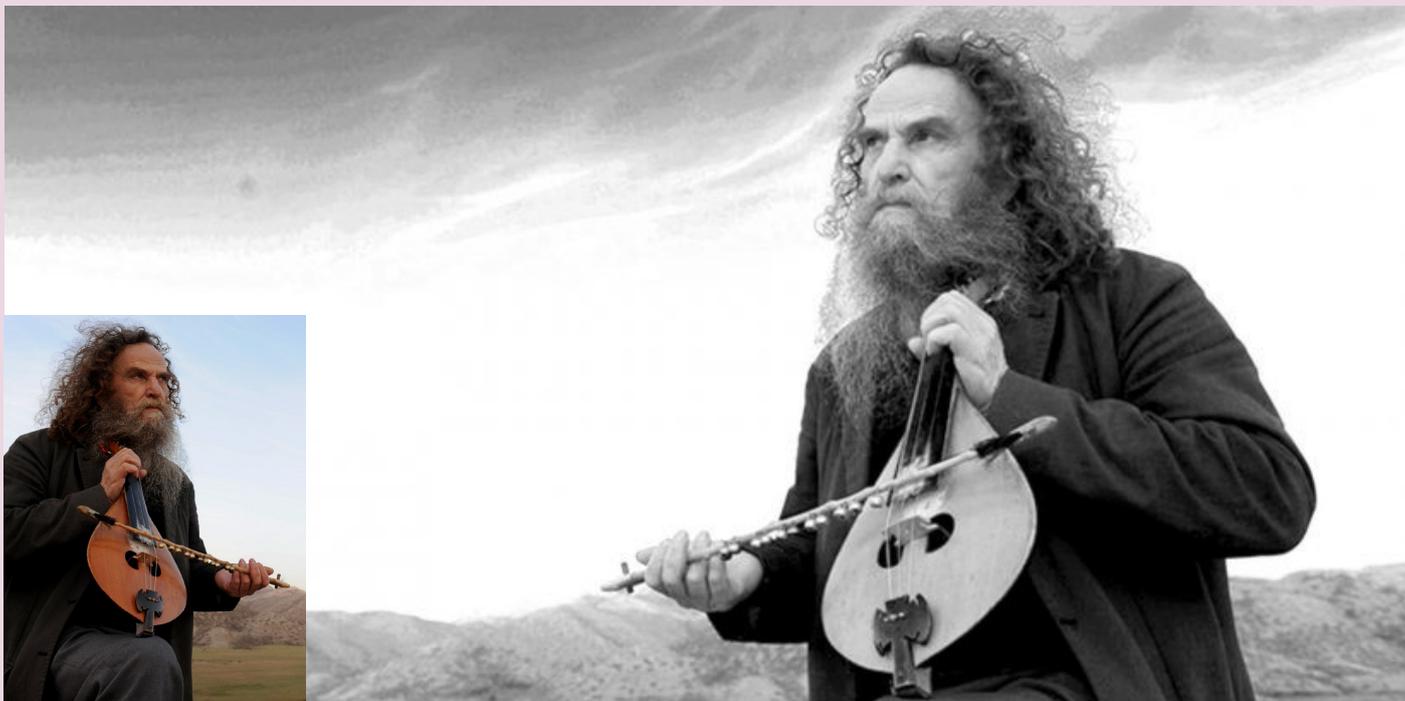


Water is Life—Kali Orexi!

"I am also thinking of Crete," said my companion. Of Crete and of my soul ... If I were born again, I would like to see the light again on this piece of earth. There is an indomitable magic here...

- Nikos Kazantzakis

**Thank you very much to all!**



In September 2019 there was a great party in Papadoyannis with the famous Cretan musician Psarantonis. In addition, 2,000 euros were collected for the "Water is Life" project. Thanks to all donors.

In Germany, the association MAZI collected 1,500 euros for the same project at the turn of 2020. Again, thanks to all donors.

Wouldn't it be a good idea?

## A round table of water ambassadors from all the villages in the region

### A short story

A friend from the region recently had an idea. "It would be good if we had water ambassadors," he said that evening in the tavern.

All together we were amazed. Ambassador? There are in politics. A Greek ambassador represents Greece's interests elsewhere in the world. For example.

But our friend went on talking. "Every village here in the region could have a person who deals with the water situation in their community. And how the other villagers see the matter, what their experiences are. "

We didn't quite understand him yet. "And what is this person doing this for?" We asked.

"It's easy," he replied. "Then all the water ambassadors from the villages meet. We talk about the topic together. "

"OK. But we already know this and that, what it looks like elsewhere." We weren't really convinced.

"That's not all." Our friend slapped his hand impatiently on the table. "We want to be honest. The matter with the water in the whole region is critical. There is no question about that. And nobody can guarantee that it won't become a huge problem at some point. "

We were silent.

"So, something has to happen," continued our friend. "It is quite possible that we all have to change a few things about ourselves. At work like at home. But we should also talk about this together."

He finished his wine glass. Unfortunately, the barrel in the tavern was

also empty.

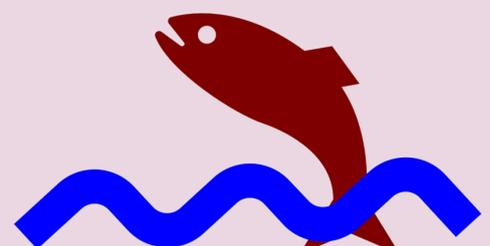
“There you see it. What is not topped up will someday run out. This can also be done with the groundwater in Asterousia. ”

That’s the story.

Our question to you:

What do you think about the idea? Should we try that out?

And would there be volunteers for that from Antiskari, Platia Paramata, Agios Kyrillos, Tsigounas, Gerokampos, Ditikos, Papadoyannis, Miamou, Krotos, Lentas and Loutra?



## MORE INFO / SERVICE



>>> Contact to working group  
"A future for Crete" / "Water is Life" by email:

**info-wil@online.de**

>>> The "Water is Life"  
homepage is also the place to  
look for project updates and  
where, in future, you will also

find other contacts, like the Water Ambassadors we hope to win for each village. (See pages 42 - 43). The website is in Greek and English, it is under construction and we will be expanding it bit by bit. This is the internet address:

**<http://water-is-life.eu>**



>>> You may also contact one of the officers of the three local  
WiL partners :

- The Association of Volunteer Firefighters and Environmental Protection Asterousia (**ginabilly@gmx.de**)
- Association for Promotion & Protection of the Village Tsigkounas  
(**sylogossapot@yahoo.com**)
- The Cultural Association of Miamou and Lentas "Asclepius"  
(**ledianos@gmail.com**)



## >>> Politics and Administration

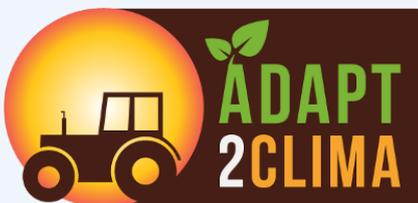
It is undoubtedly interesting to know what politics and administration say about water problems and climate change. We will pursue this in the future and direct inquiries to people and institutions such as:

- Region of Crete (Cretan Government)
- Regional Unit of Heraklion (Heraklion County)
- Demos GORTYNA and Phaistos
- Archeologia Crete
- Ministry of Environment, Energy and Climate Change (Athens)
- Ministry of Culture and Tourism (Athens)

## >>> ADAPT2CLIMA

The overall aim of the LIFE ADAPT2CLIMA project is to increase knowledge on the vulnerability of EU Mediterranean agriculture to climate change and to support decision making for adaptation planning. The methodology is based on the deployment of a set of climate, hydrological and crop simulation models for the assessment of climate change impacts on agriculture, as well as, on the development of a decision support tool for the elaboration of adaptation strategies for the agricultural sector.

<http://www.adapt2clima.eu/en/>



## >>> And here some VIDEOS:

### **Project Tamera in Portugal** (look at this brochure pages 22 – 25)

Sepp Holzer and Bernd Mueller explain the construction, the effect and the basic ideas for the construction of a water retention landscape: a local and natural solution to the global problem of disturbed water balance. Only in English.

<https://www.youtube.com/watch?v=4hF2QL0D5ww>



### **Preventing a water crisis in Greece**

Demand for water is outstripping supply in Greece and climate change is making it worse. Greece needs to act now to secure its water future. Greek language.

<https://www.nationalgeographic.com/science/2020/05/partner-content-where-our-water-goes-greece/>



### **Water is Life**

A video from the environmental team of Souda High School. Responsible teachers: Mouzouraki Vassilia, Kitsouli Anna

[https://www.youtube.com/watch?v=\\_dGvSf4adNA](https://www.youtube.com/watch?v=_dGvSf4adNA)



### **Water is life for us**

Film made by the children of the Primary School of Dimitritsi, Greece and the Primary School of Latsia, Cyprus, in the framework of their collaboration in the etwinning program with the environmental theme "a drop travels"

<https://www.youtube.com/watch?v=-ogcFhRHhRs>



### **Improved rainwater harvest on the Greek island of Lipsi**

A nature-based solution implemented by GWP-Med with the support of the Coca-Cola Foundation relieves water pressure for the Greek island of Lipsi. GREEK language.

<https://smartwatermagazine.com/news/global-water-partnership/local-rainwater-harvesting-solution-gives-boost-water-scarce-islands>



# Some dates and facts

The details refer to the year 2014 unless otherwise stated.

Source: LEDDRA research - K. Damianakis, D. Psarras, E. Stylianou (2014)

	MESSARA	ASTEROUSIA
<b>Population</b>	38,772 (2011)	5,535 (2011) Decrease > 3,000 since 1961
<b>Increase older people 1991- 2001</b>	+ 48 %	+ 53 %
<b>Occupation</b>	Agriculture: 56% Secondary sector: 10% Services: 30%	Agriculture: 67% Secondary sector: 6% Services: 23%
<b>Cropland</b>	75% (private)	30% (private)
<b>Grazing land</b>	16% (private)	60% (94% private, 6% municipal)
<b>Farms / cattle breeding</b>	10,548	1,810
<b>Arable and fallow land</b>	Decreased by 70.5% (1961-2000)	Decreased by 89% (1961-2000). It was converted to olive groves /pastures
<b>Education</b>	Very low; 60% primary education or less	Very low; 70% primary education or less
<b>Other facts</b>	71% of cultivated land is olive groves 37% of cultivated land is irrigated (from 5% in 1961)	Number of livestock (sheep and goats): tripled between 1961 and 2000 (from 30.000 to 90.000)
<b>Problems</b>	Soil erosion Ground water pollution Water stress / Seasonal water scarcity	Water stress Soil erosion Land desertification



Care for the beauty  
of our region



Care for the future  
of our children

a WATER IS LIFE brochure  
from the working group "A future for Crete"