

Unveiling the Silent Struggle: Drought Challenges in the Mediterranean Islands

The Case of Lesvos in Greece

Sandra Megens, 2024

When it comes to selecting the best Mediterranean islands to visit, the choices are abundant. Among these stunning destinations lie many Islands in Greece. This blog (getting the win of an article) is set in the azure waters of the Aegean Sea, introducing one of its celebrated islands renowned for its stunning landscapes, rich history, and vibrant culture, Lesvos!

Lesvos, approximately 1,633 square kilometers, ranks as the third largest Island in Greece after Crete and Evia (Greek National Tourism Organization, 2022). Its diverse topography, encompassing mountainous regions, fertile plains, and picturesque coastlines, offers a rich landscape to explore, where biodiversity flourishes with over 250 recorded bird species, (Lesvos Birders, 2022). Lesvos is home to approximately 11.5 million olive trees, including olive oil production that exceeds 15,000 tons per year.

According to some literature the water footprint of 1 Liter of olive oil, around 3914 L, is still low compared with other regions such as Spain (Salmoral et al. 2011). Still a challenge to the amount of water needed to produce one kg of olive oil. In the Mediterranean countries, 97% of the total world production of olive oil is produced (Aggoun et al., 2016).

However, beneath its picturesque facade lies a hidden crisis – drought. Despite its apparent invisibility, drought (meteorological drought) silently ravages the island, posing significant challenges to its residents, farmers, and -the burgeoning- tourism industry. In this article, we explore the nuanced complexities of drought in Lesvos Island, shedding light on its far-reaching impacts and exploring potential solutions to mitigate its effects.

The Invisible Presence of Drought

Drought, often an unseen hazard, casts a shadow over Lesvos Island, manifesting in various forms that disrupt daily life. As precipitation levels dwindle and water sources deplete, the island grapples with the dire consequences of prolonged water scarcity, which profoundly impacts freshwater ecosystems. According to the 2012 IPCC report, Southern Europe is projected to experience more intense and longer droughts than other European regions. Recent data from Copernicus EU suggests that the drought episode in 2022 could be the worst in 500 years.

Like other Mediterranean islands, Lesvos faces similar energy and climate challenges. Greece's iconic olive trees are increasingly at risk from heatwaves and flash droughts. To agricultural communities facing the brunt of drought, dwindling water supplies jeopardize both crop growth and economic stability. The once-thriving olive groves now yield higher harvests, posing a threat to the island's agricultural heritage and economic prosperity. Farmers are thus exploring new ways to care for and harvest their crops to maintain their viability in warmer

environments. While some envision a future where southern Europe resembles northern Africa within the next 50 to 100 years, traditional olive groves play a vital role in combating climate change. A deeper explanation of the difficulties in producing olives last year was provided by the owner of one of the oldest olive oil businesses, the Papadellis Olive Oil Factory. This family business, passed down through generations, working closely with the cooperative of olive producers in Lesvos. They serve as carbon sinks and could be integrated into carbon-offsetting projects, which are becoming increasingly popular but also controversial methods used to reduce the carbon footprint of companies or countries. Amidst the olive groves, signs of change are evident, with modern windmills and solar panels dotting the landscape. These innovations mean a shift towards renewable energy sources, reflecting efforts to adapt to and mitigate the impacts of climate change on the island. Lesvos have significant water bodies, with 63 wetlands, the largest one is The Perasma Reservoir in the northern part of Lesvos.¹ A drying reservoir was observed between Molyvos and Vafios. Despite the pressing need to protect the structure for the next season, there is little effort to safeguard it, resulting in erosion along its banks. The responsibility for preserving this water body in good condition remains unclear, making it difficult to address the issue effectively.

Drying Reservoir (Lesvos, 2024)



Despite flourishing gardens and terraces irrigated by endless tubes, water scarcity persists, Lesvos had rationed water and challenging residents' access to this vital resource, asking for less yard irrigation due to extreme drought, (water in reservoirs is depleting). Water scarcity reverberates throughout Lesvos Island's communities, disproportionately affecting vulnerable populations and disrupting daily routines. Consequently, residents face challenges in accessing water for household activities, underscoring the urgent need for equitable water distribution. While renewable energy sources and proposed desalination plants offer promising solutions, the island grapples with increased water demand driven by economic growth.

Tourism to Take Care Of

Other threats to Drought, that poses challenges to Lesvos Island's towns, is the tourism industry, with limited water resources strained by the influx of tourists. Balancing tourism-

¹ Kalloni Environmental: <https://www.lesvosbirds.gr/en/wetlands>

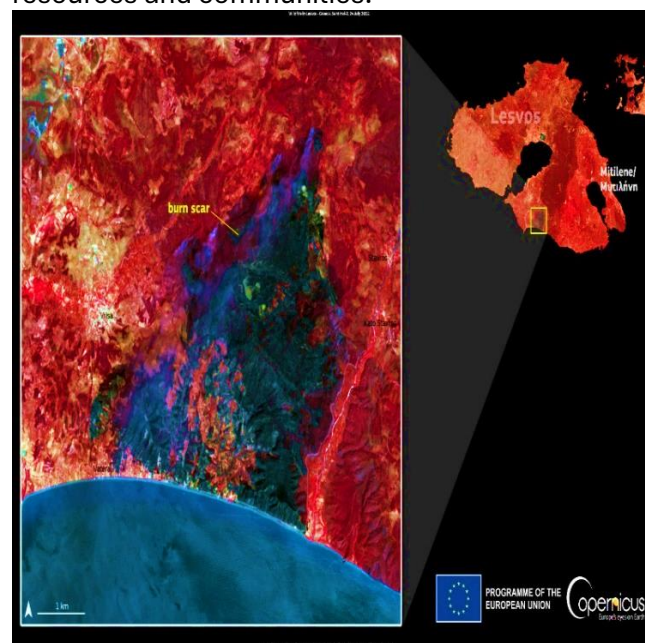
driven economic growth with environmental sustainability is essential to preserve the island's natural beauty and cultural heritage. However, prolonged drought culminated in catastrophic wildfires, devastating vast swathes of wilderness, and threatening human settlements. The fires, fueled by drought-induced dryness, inflicted heavy losses on both human lives and natural ecosystems, underscoring the urgent need for proactive drought mitigation measures, Xystrakis et al., (2013).

The impact of tourism on causing wildfires on an island like Lesvos can be significant. In 2023, Greece receives around 36 million of inbound tourist per year, especially during peak seasons, can lead to increased human activity in natural areas, such as forests and coastal regions. This heightened human presence raises the risk of accidental fires due to factors like discarded cigarettes, unattended campfires, or even negligent behavior.

Moreover, the infrastructure and services required to accommodate tourists, such as hotels, restaurants, and recreational facilities, may further strain local resources and contribute to environmental degradation. For example, increased demand for water in tourist-heavy areas such as Mithymna, Petra, Moira or Sagri, can exacerbate water scarcity, especially during drought periods when water sources are already limited.

Additionally, tourists may engage in activities like off-road driving, which can increase the likelihood of igniting wildfires, particularly in dry vegetation areas. The influx of tourists may also lead to overcrowding in popular natural sites, increasing the risk of accidental fires due to congestion and lack of proper waste management. Overall, while tourism can bring economic benefits to an island like Greece, it is essential to manage it sustainably to minimize the risk of

wildfires and protect the island's natural resources and communities.



Copernicus Observer: Lesvos, 2022

Charting a Path Forward

To address drought challenges on Lesvos Island, it is crucial to prioritize water conservation, invest in alternative water sources, and adopt resilient agricultural practices. Additionally, fostering community engagement and collaboration plays a vital role in enhancing adaptive capacity and promoting collective resilience. Sharing and utilizing findings from communities grappling with drought can significantly contribute to the objectives of the UNCCD Community of Learning and Practice on Drought Management². Recognizing that drought is a major focus for the UNCCD underscores the importance of collective efforts to preserve the land and ensure that everyone's needs are met. Therefore, collecting evidence and sharing best practices from these regions is invaluable in combating desertification and drought, especially in similar cases across Mediterranean islands.

² UNCCD/CLP: <https://droughtclp.unccd.int/clp/home>

Closing Reflections

Through this journey, I've learned that drought can evolve into a disaster, underscoring the socially constructed nature of such events. I suggest that overlapping risks, some of which are human induced, have led to more devastating natural hazards, including droughts. We should embrace these climate change challenges and encourage behavior change or habit transformation through community engagement and strategic communication. Human activities, including unsustainable water management, environmental degradation, and inadequate disaster preparedness, significantly shape the severity and impact of drought-related disasters.

My experience in Levos confirms my belief that we need to learn to embrace the impact of climate change rather than fear it, including drought. The past forest fires, water limitations, drying river streams, decreased rainfall, and changing climate patterns, along with the increasing presence of tourism on the island leading to avoidable water stress, are signs that not everything is failing in response to these climate impact and challenges. Lesvos' communities are adapting to these events by prioritizing their needs. *"Disasters occur due to a combination of hazards and vulnerabilities, but another critical factor is the behavioral responses"*.

In conclusion, addressing drought challenges on Lesvos Island requires a multifaceted approach centered on water conservation, alternative water sources, and resilient agricultural practices. Community engagement and collaboration are essential for enhancing adaptive capacity and collective resilience.

- There is a lack of evidence on drought response in this region, where policies are less effectively monitored than in inland regions. Specific factors and limitations, such as lack of communication or effective government presence, often do not account for warnings about climate change impacts or missed sunny days.
- Sharing insights from communities grappling with drought can significantly contribute to UNCCD's objectives, emphasizing the collective effort needed to combat desertification and drought. Ending drought should be seen not merely as mitigating an invisible disaster but as a vital opportunity to build resilience through knowledge creation against future climate challenges, and extreme events presence.

A remarkable event:

As I finished my island adventure, the weather changed, hinting at rain. When I returned to my room, I found a cat sleeping on my towel. A veteran islander said the cats return during rainy times or when there are people around. The next day, I found a tiny kitten on the towel, left alone by her mother. This made me think about how people react to different situations. An older local lady seemed less happy than me about the new kitten. Another lady told me about the difficulties they face during less rainy days and providing good service to the tourists. This is just something that happens on the island, much like how the weather changes with the seasons and what it means to each person in a different location, confronting different challenges in their daily lives.

The locals are facing challenges such as water scarcity and fires caused by the heat. Despite these difficulties, ensuring that tourists have a great experience is still a top priority. The lack of water also impacts the growth of olives, the animal migrations patterns, and their behavior to cope with limited resources, leading to shifts in the local ecosystem dynamics, but among the locals, there is an optimism about the upcoming harvest and the potential for increased tourism.



(Molyvos, 2024)

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