Taste, Terroir, and Beyond: Decoding the Complexities of Water, Sustainability, and Culinary Harmony.

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raise awareness towards a more sustainable and water-secure future. Through the labyrinth of bottled water, this article invites a recalibration of perspectives. What may appear as a simple choice on the surface unfurls into a realm demanding recognition of its variegated dimensions—a choice, a commitment, and a lens into understanding not just water, but the world we inhabit.

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In an era defined by conscious consumption, the significance of fresh water remains underestimated. Curiously, water, the world's most utilized resource, grapples with contentious debates, especially when encased within a bottle. This paradox spotlights the need for a more informed dialogue, acknowledging both the indispensability of fresh water and the charged debates that encapsulate its consumption.

Water tastings serve as a testament to water's multifarious role beyond mere sustenance. However, in the age of social media, water sommeliers are transcending their traditional roles, advocating for a paradigm that defies sweeping generalizations and oversimplifications. Amidst this discourse, the dichotomy between RO-purified bottled water and natural mineral water takes centre stage. Beyond being a mere commodity, natural mineral water emerges as a revelation. Sourced ethically, it holds experiences, ensures wellness, and has the lightest water footprint among all other packaged beverages. Water sommeliers, traditionally tasked with guiding water choices, have embraced a broader role too. They champion transparent sourcing, ethical practices, and the preservation of water sources, fostering a more sustainable approach to water consumption. Through the premise of “water is not just water”, water sommeliers skillfully weave a narrative, turning water from an ordinary element into a captivating tale, where each sip holds the history of its source and the flavours of its origin. In doing so, they reshape water's role within the broader narrative of consumption, bridging the vast divide between popular perception and the intricate nuances of the bottled water landscape. Real-world examples of responsible brands like Aava Natural Mineral

Water demonstrate how ethical water sourcing and conscientious waste management can coexist within a business. These instances underscore the potential for “small water farmers”, a term introduced by Dr Elena Berg, to lead by example in promoting environmental stewardship and resource protection.

In conclusion, this article underscores the transformative role of water sommeliers in shaping water consumption patterns. In a world where the balance between human needs and environmental preservation is crucial, water sommeliers can raise awareness towards a more sustainable and water-secure future. Through the labyrinth of bottled water, this article invites a recalibration of perspectives. What may appear as a simple choice on the surface unfurls into a realm demanding recognition of its variegated dimensions—a choice, a commitment, and a lens into understanding not just water, but the world we inhabit.

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Navigating water's journey from source to palate, guided by taste, sustainability, and advocacy with water sommeliers.

We are living in an era where there is growing awareness and emphasis on being vigilant about what we consume, whether it be food, information, or products. This heightened consciousness is driven in part by technology and social media. The need to understand the impact of our choices on personal health, society, and the environment is intensified even more as we cross over from global warming into what the UN now refers to as the “era of global boiling.” (Guterres, 2023)

We want to know where our food is grown, how it's grown, who grew it, and who made our clothes. But how many of us ask those questions about water? Yes water, since it's the most valuable inorganic compound on the planet. It’s impossible to produce food, clothes or even electricity without water. The Earth’s surface is 75% water, but life-essential freshwater makes up only 0.77% of this percentage. Of this, 68.7% of freshwater is trapped in glaciers and icebergs, with only 30.1% available as groundwater (Shiklomanov,1993).

Bottled water is a ubiquitous part of our busy lives and also happens to be one of the most controversial beverages on the planet. The bottled water boom in large part comes from distrust in public drinking water supplies (Hu, Morton, Mahler, 2011). We value convenience and easy access to safe and clean drinking water, which is a void that bottled water easily fulfils. Hence, public perception regards all bottled water as “safe” or “pure”, homogenizing the entire industry. But there is much more to it. Who can explain that better? Enter: Water Sommeliers.

A water sommelier tastes, evaluates, and appreciates the characteristics and nuances of different types of water. Much like wine, water has terroir too. Natural mineral water is the highest grade of bottled water since it is ethically procured from a real source, not a commodity with uniform characteristics. It is a natural unprocessed product with terroir reflecting the geology of and circumstances of its origins. It could be from a spring, a glacier, an iceberg, an aquifer, or even captured from the atmosphere - maintaining the integrity of the source is vital. Such waters are often referred to as Fine Waters since they have terroir, hold experiences and give wellness. Similar to a wine sommelier, a water sommelier's role involves understanding the subtleties of various waters and guiding others in selecting water based on their preferences, and to accompany food or other beverages. They work primarily in high-end hospitality where discerning customers seek to explore the sensory qualities of water and its potential to complement various cuisines.

However, in today's world water sommeliers are moving beyond the realm of restaurants and bars. Water education, advocacy, and sustainable practices are the need of the hour.

FINE WATER - AN EPICUREAN DELIGHT

In 2002, Dr. Michael Mascha's cardiologist gave him a choice: he could either continue to drink wine or continue to live. As an academic food anthropologist who had travelled the world and could no longer consume alcohol, the option of choosing between just still and sparkling water was frustrating (Mascha, 2006). Along with Martin Riese, who is arguably the world's most famous water sommelier, Mascha founded the Fine Water Society in 2008. Since then, Riese and Mascha have trained many water sommeliers, including me, and they organize a Fine Water Summit each year.

Fine natural waters are like fingerprints: no two are the same. Depending on the origin and source, water acquires its minerality, also known as TDS (Total Dissolved Solids). It is a common misconception that water is a palate neutraliser: it is a palate enhancer and works well even when paired with wines. As a water sommelier, I'm frequently asked which water is the best. Just like wine, there is no such thing as the perfect or best water. The flavour is subjective, and water menus are designed to complement food/spirits and achieve more balanced flavours. Water enhances the aromas of food and wine, and minerals play a vital role here.

For example, a water with low TDS and no carbonation is great for tannin-rich red wines or acidic white wines, like a Sauvignon Blanc. The low minerality and smoothness balance the tannins and the acidic notes of wine, bringing forward more fruit complexity. For very spicy foods, where spices are quite sharp, a mid-minerality sparkling water with very fine bubbles helps break down the heat. Rich foods also pair perfectly with sparkling water to refresh your palate, since bicarbonates counter the heavy, full flavour. A still water with less complexity when paired with a salad with vinaigrette helps lower the acidity, and get more aroma from the greens. Water also impacts other beverages, so it plays a vital role in mixology and cooking. Investing in a fine whiskey or scotch and then pairing it with tap water containing lead, chlorine, and other contaminants can affect the taste of spirits. Using a natural water with a high magnesium content to brew coffee will draw out the natural sweetness and aromas in the blend. For Japanese cuisine, especially for dashi and Japanese rice, a lower TDS water works better since it can complement the subtle flavours of that cuisine (Mehta, 2023).

TASTE VS FLAVOUR - UNDERSTANDING THE DIFFERENCE.

To fully grasp the concept of a water tasting, it is important to first outline the key difference between taste and flavour. “Taste refers to our five sensitivities — sweet, sour, salt, bitter, and umami — while flavour is a “hedonic” sense involving smell, texture, and expectation” explains neurobiologist Stuart Firestein (Firestein, 2011). Taste, smell, and mouthfeel (a food’s tactile sensation) combine to produce flavour. Sensory receptors in the nose and mouth report information on each of these components to the brain, where the sensation is integrated into a highly complex process we are just beginning to understand. The flavour is not in the food or beverage, but rather in our brain (Spence, 2017). Hence, a food or water could have the same taste, but the flavour experienced will be subject to the experience of the person consuming it. While curating cross-modal experiences with water sounds, smells, colours, shapes and textures, even atmosphere, variety, and company play a fairly vital role (Mascha, 2006).

Even one dish could potentially have multiple pairing options with various varieties of water. In a pairing, one event could be to match the water to the food flavours, such as pairing a ceviche with a very low-minerality water like Lofoten Arctic Water, which wouldn’t overpower the subtle seafood flavours. Alternatively, the other event involves a contrasting pairing, such as Iskilde from Denmark, a mid-minerality water that pairs well with fish, since it also has a slightly earthy aftertaste to complement the cured seafood. Eventually, it would depend on the preference and palate of the end consumer, but the possibilities are many.

HOW ACCURATE ARE WATER TASTINGS?

A study titled “Fine Water: A Blind Taste Test” conducted by Kevin W. Capehart and Elena C. Berg recruited more than 100 subjects to participate in a blind taste test that consisted of four brands of bottled water, and even tap water. The tasting involved three successive experiments. Overall, results suggested that consumers did not have strong preferences over different bottled waters to the extent that they could even tell a difference (Berg, Capehart 2018). Hence, a water tasting will usually involve other elements such as food, wine, or other beverages and spirits, since the best way to experience and highlight the subtle nuances of water is through a pairing.

When it comes to water tasting competitions, judging is not left up to chance in spite of the differences between waters being so subtle. In fact, the inter-rater reliability of water judging is generally better than chance and, about the same as

the inter-rater reliability of wine judging at some wine competitions. A study published in the Journal Of Wine Economics, conducted by Michael Mascha, Elena Berg, and Kevin W. Capehart concluded that “perceptible differences between fine waters exist, but are less pronounced than those between fine wines,” (Mascha, Berg, Capehart, 2022).

WATER AND WELLNESS

While epicurean experiences leave one with a lasting and memorable impact, it is also a privilege to have access to such waters with ease. Access to clean and safe drinking water is a basic human right, and sommeliers advocate for this actively, including encouraging drinking tap water over bottled demineralised RO water, if it is safe and healthy to consume. Natural Minerals are the nutrients in drinking water, and so essential for wellness, that even the World Health Organisation warns against the long-term effects of consuming demineralised RO water that has not been remineralised (World Health Organisation, 2005). In fact, RO is not only detrimental to health, RO filters cause 74% water wastage, so this is a process that is extremely detrimental to the environment (CITE, 2015). The Indian food regulatory authority, the FSSAI (Food Safety and Standards Authority of India) put out a mandate that all packaged drinking RO water brands would have to compulsorily re-add and fortify water with minimum levels of calcium and magnesium since they are essential for health.

The relationship between water and wellness is intertwined with the history of the bottled water industry. The healthy origins of bottled water trace back to the 18th century during Europe's industrial revolution and the resurgence of spa culture. As cities grew and became polluted, water-related illnesses emerged, leading to the rise of spa towns where people sought waters for their healing properties. This practice has roots in Greek and Roman traditions. Notable spa towns like Vichy, Evian, and San Pellegrino gained prominence, and are now popular water brands (Nobajas, 2018). In the 20th century, chlorination revolutionized water safety by nearly eradicating waterborne diseases, becoming a vital method for both public water supplies and bottled water. This innovation remains one of the century's crucial lifesaving contributions.

In the 21st century, the discourse on the bottled water industry has shifted. Not all bottled water promotes wellness. Many products, despite exaggerated claims, lack true health benefits. A significant portion of "bottled water" is essentially treated tap water, altered during purification, diminishing its original mineral content and microbiology in order to remove contaminants. Corporations like Coke and Pepsi

profit from brands like Aquafina and Dasani, which are essentially purified tap water, packaged as bottled water. These companies capitalize on the perception that all drinking water is equal once purified for safety, but this process often removes essential minerals.

The term "pure" for water can be misleading. Ultra-pure water, used in chip manufacturing, would harm humans by depleting nutrients (Timmons, 2014). If you were to drink that water, it would probably kill you because it would leech out all the nutrients from your body. Machines need ultra-pure water, not humans. The foremost trend in water remains to return to nature. Natural water is scarce, irreplaceable, and offers unique wellness due to organic origins and bioavailable minerals. Avoid being misled by marketing, names, and passing trends – especially fancy nomenclature. For example - ionized alkaline water is one of the biggest marketing gimmicks of the 21st century. Simply raising the pH of demineralised water through an ionizer cannot affect your body's pH level significantly since your body has its own pH that it can regulate. Minerality is what lends pH to a water, so drinking a high pH water with no minerals or very few minerals has no real wellness benefits (Mahdawi, 2018).

CAN BOTTLED WATER TRULY BE SUSTAINABLE?

Bottled water has transformed into a commercial good, a trend, a convenience, and a symbol of distrust in tap water. Few other bottled beverages attract as much controversy, even though the main ingredient is water. It takes 168 litres of water to produce one pint of beer, a standard cup of coffee (125ml) has a water footprint of 130 litres (Paddison, 2013). *The Wire* reported in July 2023, that US Congress in 2022 committed more than $50 billion to boost US chip production in a bid to make the country more technologically independent. But to crank out silicon chips, they need to source millions of gallons of ultrapure water. In fact, water is the most important raw material in any industry, and also the most expensive if not optimized and reused.

The general misconception of treating all water packaged in a bottle as equal or the same has led to the commodification of water. With natural water sources, the ecology and biodiversity of a water source take centre stage. Water conservation is crucial and facilitated through recharge structures, and protecting the source from contaminants and pollutants is paramount.

In today's context, water sommeliers hold a broader purpose than just organizing tastings. They advocate for unprocessed, naturally mineral-rich waters, which

possess the planet's lightest water footprint due to direct bottling without rejection. By safeguarding these sources, water sommeliers inherently endorse sustainable development, nature preservation, and ethical conduct. This path is vital for securing a water-sufficient future.

Dr. Elena Berg, a Certified Water Sommelier, serves as an Associate Professor of Environmental Science and Director of the Joy and Edward Frieman Environmental Science Research Center at The American University of Paris (AUP), France. As an environmental scientist, her dedication centers on water, particularly sustainable resource management. While getting certified as a water sommelier, she learnt more about smaller companies with clear environmental policies. Dr. Berg refers to them as “small water farmers” and believes such small water farmers are in the perfect position to spread knowledge about global sources of freshwater and to champion the protection of our precious natural resources. They can also play an active role in advocating for universal access to clean drinking water and in dispelling myths about the safety of bottled vs. tap water.

I personally resonate with this sentiment as a certified water sommelier from India and the youngest in the country. Water is integral to my life through Aava Natural Mineral, a brand owned by my family. In Zoroastrianism, which we practice, water is more than a life-giving entity, it is a living element in itself. Aava is hailed as the guardian angel of water that keeps it pure and protected. Reverence for water is a living tradition for us as a family and as a business. Aava originates from the Aravalli mountains, taking a 20-year underground journey to unique, naturally alkaline aquifers, giving it a pH of 8 and balanced minerals. Aava's smoothness and sweet aftertaste have impressed many international water sommeliers, and it has won several awards. Over 18 years, Aava has served prestigious hotels, airlines, restaurants, and institutions across India. However, what sets Aava water apart is its rarity within India's bottled water landscape. While "mineral water" is often synonymous with RO-filtered water containing no minerals, Aava is among only 28 natural mineral water licenses in a country with 7000 packaged water licenses.

India is the most populous nation in the world today, a country of 1.4 billion people where 12.2% of the population (approximately 178 million people) rely on bottled water for daily hydration, as per the findings of the National Statistical Office of India’s report published in 2019. For every litre of water purified using RO, approximately 3 or more litres of water is rejected, and the demineralisation process removes all essential nutrients from the water. In 2019, the National Green Tribunal of India in its judgment to ban RO below a TDS of 500mg in Delhi, deemed RO a

health and environment hazard. The judgment was endorsed by the Supreme Court of India in 2019.

During COVID-19, Aava Natural Mineral Water was subsidised, and in some instances given absolutely free of cost to hospitals, COVID recovery centres, and other relief efforts, to ensure easy access to natural mineral-rich water for better recovery and hydration. It is my family's commitment to ethical water sourcing, zero water rejection, biodiversity conservation, and efficient waste management (Aava has recycled over 75 million bottles as per plastic waste management laws under the End Producers Responsibility initiative) that inspired me to become a water sommelier in the first place. We have always maintained that we don't bottle water, we bottle trust, health, and wellness.

Water is chronically undervalued. Global warming, our ever-growing population, and unchecked industrialisation have accelerated extreme conditions and strained our resources more than ever, but as Charles Fishman explains in *The Big Thirst- The Future of Water*, the “water crisis” is not a global issue that can be solved with a blanket push for funding and innovation. Each crisis has its own solution. It is our behaviour, our consciousness, and our policies that will determine our water future.

Water sommeliers give attention to hydration, while also recognising the complexity of the narrative around bottled water versus access to safe drinking water. It is imperative to value water and advocate for the conditions that enable its existence – be it through water recharge, biodiversity conservation, water conservation, and even ethical sourcing and purification methods (if needed) that can maintain the integrity of water in its natural state. Sommeliers are equipped to understand and explain the symbolism and significance of water and tell its story through the fundamental premise of “water is not just water” (Mascha,2006). If we think about what we drink, we will care more for the planet.

With the privilege to choose our drinking water, knowing this narrative is vital, to guide our conscious decisions. A staggering 70% of freshwater is channelled into agriculture, intertwining water and food security (Ringler, 2022). Any lack of adequate water affects all food system components. As our freshwater remains finite, the choice echoes: more e-chips or t-shirts, or human health and hydration? A resounding question lingers: What are we doing today to amplify water's worth?

References

1. *'Era of global boiling has arrived,' says UN chief as July set to be hottest month on record*. (2023, July 27). the Guardian. https://www.theguardian.com/science/2023/jul/27/scientists-july-world-hottest-month-record-climate-temperatures
2. Shiklomanov, L.A. (1993) World Freshwater Resources. In: Gleick, P.H., Ed., Water in Crisis: A Guide to World's Freshwater Resources, Oxford University Press, New York, 13-24.
3. Hu, Z., Morton, L.W. and Mahler, R.L. (2011) *Bottled water: United States consumers and their perceptions of water quality*, *International journal of environmental research and public health*. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3084479/
4. Mascha, M. (2006). *Fine waters: A connoisseur's guide to the world's most distinctive bottled waters*. Quirk Books.
5. Hospemag, E. (2023) *Exclusive interview with Avanti Mehta, India's youngest Certified Water Sommelier*, *www.hospemag.me*. Available at: https://www.hospemag.me/exclusive-interviews/avanti-mehta-indias-youngest-certified-water-sommelier.
6. Stuart Firestein, S. (2021) *The difference between taste and flavor*, *Big Think*. Available at: https://bigthink.com/videos/the-difference-between-taste-and-flavor/#
7. Spence, C. (2018). *Gastrophysics: The new science of eating*. National Geographic Books.
8. Capehart, K. W., & Berg, E. C. (2018). Fine water: A blind taste test. *Journal of Wine Economics*, *13*(1), 20-40. https://doi.org/10.1017/jwe.2017.50
9. Berg, E. C., Mascha, M., & Capehart, K. W. (2022). Judging reliability at wine and water competitions. *Journal of Wine Economics*, *17*(4), 311-328. https://doi.org/10.1017/jwe.2022.41
10. Water; Sanitation; and Health Programme. (2005). *Nutrients in drinking water*.
11. *Reports from CITE "Water filter evaluation in India"*. (n.d.). DSpace@MIT Home. https://dspace.mit.edu/handle/1721.1/115528

12. Nobajas, A. (2018, March 22). *The bottled water industry's healthy origins*. The Conversation. https://theconversation.com/the-bottled-water-industrys-healthy-origins-92978

13. *Water so pure it will kill you*. (2014, December 5). NU Sci Magazine – Northeastern University's Student-Run Science Magazine. https://nuscimagazine.com/water-so-pure-it-will-kill-you-2615d5ca116e/

14. *Is alkaline water a miracle cure – or BS? The science is in*. (2018, October 29). the Guardian. https://www.theguardian.com/global/2018/oct/29/alkaline-water-cure-bs-science-beyonce-tom-brady

15. Paddison, L. (2013, August 23). *How much water goes into producing our food and drink? - in pictures*. the Guardian. https://www.theguardian.com/sustainable-business/gallery/how-much-water-to-make-food-drink

16. Nast, C. (2023, July 19). *Want to win a chip war? You're gonna need a lot of water*. WIRED. https://www.wired.com/story/want-to-win-a-chip-war-youre-gonna-need-a-lot-of-water/

17. Sharma, H. (2019, November 29). *12% of urban India relies on bottled water, 1 in 4 homes has a purifier*. The Indian Express. https://indianexpress.com/article/india/12-of-urban-india-relies-on-bottled-water-1-in-4-homes-has-a-purifier-6142062/

18. *NGT asks govt to ban RO-purifiers that demineralises water*. (2020, July 14). The Hindu. https://www.thehindu.com/news/national/ngt-asks-govt-to-ban-ro-purifiers-that-demineralises-water/article32075468.ece

19. *Ban on RO systems to continue in Delhi, Supreme Court declines to stay NGT order*. (2019, November 22). Business News: Business News India, Business News Today, Latest Finance News, Business News Live | The Financial Express. https://www.financialexpress.com/india-news/ban-on-ro-systems-to-continue-in-delhi-supreme-court-declines-to-stay-ngt-order/1772112/

20. Fishman, C. (2011). *The big thirst: The secret life and turbulent future of water*. Simon & Schuster.

21. Ringler, C., Agbonlahor, M., Barron, J., Baye, K., Meenakshi, J., Mekonnen, D. K., & Uhlenbrook, S. (2022). The role of water in transforming food systems. *Global Food Security*, *33*, 100639. https://doi.org/10.1016/j.gfs.2022.100639

22. *New rules for bottled water that require adding minerals to finally take effect from January 1*. (2020, December 4). Moneycontrol. https://www.moneycontrol.com/news/business/new-rules-for-bottled-water-that-require-adding-minerals-to-finally-take-effect-from-january-1-6189591.html

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