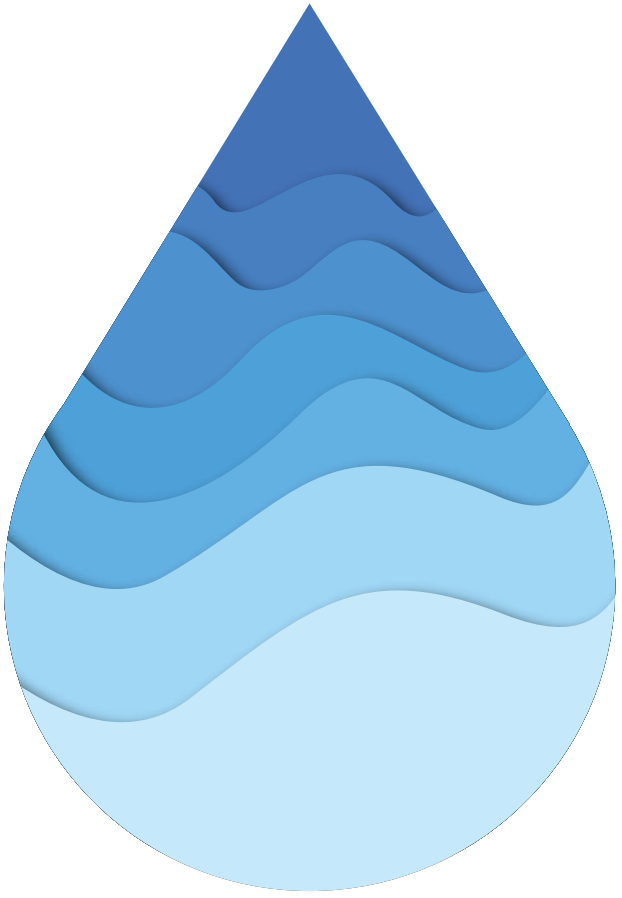
Water

The Essence of Life

By Multiple Contributors



ecocivilisation

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With sincere gratitude,
Ecocivilisation

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CHALLANGER

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WATER SONG

Algonquin Water Song Phonetic Lyrics

SING FOUR TIMES, EACH TIME FACING ONE OF THE FOUR DIRECTIONS IN THIS ORDER:
EAST, SOUTH, WEST, NORTH

Nee bee wah bow
En die en
Aah key mis kquee
Nee bee wah bow
Hey ya hey ya hey ya hey
Hey ya hey ya hey ya ho

Source: https://www.singthewatersong.com

INTRODUCTION

INTRODUCTION

By Dr. hc. Violeta Bulc

Now we finally understand that Earth is a living entity with its own cycles, behaviours, and evolutionary phases. It is inviting humanity to transition from a human-centric to a planetary-centric mindset, acknowledging that every action we take resonates throughout the entire ecosystem with both positive and negative repercussions.

Human innovation has given rise to two new worlds: urban ecosystems (nature two) and the virtual realm (nature three), which now coexist alongside the authentic planetary ecosystem (nature one). Despite our immersion in these new environments, their sustenance and very existence remain intricately linked to nature. Therefore, aligning with planet Earth necessitates harmonizing all three "natures" into a symbiotic, cross-pollinating system for the collective benefit. (Figure 1)

While Earth could survive without us, our human-centric activities risk irreversible damage to the planet's ability to sustain life. A planetary perspective prompts us to consider consequences beyond mere societal impacts.

As we stand on the cusp of transformative changes for humanity and Earth, the transition from the stable Holocene era to the disruptive Anthropocene is accelerating. This new epoch sees humanity exerting significant influence on Earth's natural cycles, climate, and biodiversity, challenging our own adaptability.

Amidst these changes looms water, the essence of life, central to Earth's (almost) closed system. Human actions, such as pollution and ecosystem destruction, directly impact this vital resource.

Preparing for the future requires a new attitude and awareness. Engaging with nature, fostering resilience, and embracing our interconnectedness with the planet are imperative. The narrative highlights the importance of literature like this one, provided by the Ecocivilisation Movement in raising awareness, fostering understanding, and driving essential

changes toward resilience and sustainable coexistence.

Ultimately, a renewed, respectful relationship with water signifies a crucial starting point, a foundational step toward navigating Earth's transformative cycles and securing a harmonious future for all life on this planet.

The call for heightened awareness, both individually and collectively, regarding our interconnectedness with all aspects of existence is resonating globally. This awareness extends beyond human-created societies to encompass our integration as integral components of the larger whole.

A crucial starting point in fostering this awareness is cultivating a renewed and respectful relationship with water, the essence of life itself. Water symbolizes our profound connection to the planet and serves as a tangible reminder of our dependency on and responsibility toward Earth's intricate systems.

By embracing this perspective, we embark on a transformative journey toward recognizing and honouring our interconnectedness with nature and all living beings. This shift in consciousness lays the groundwork for a more harmonious and sustainable coexistence with the planet we call home.

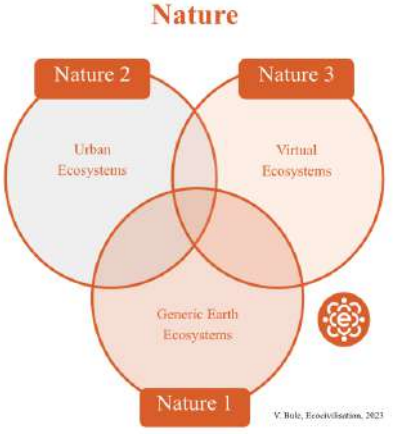

Figure 1: Nature's subsystems

LEARNINGS

Photo Credit -Deirdra McMenamin Artist™ © Deirdra@duck.com

THE ESSENCE OF WATER:

A MULTIFACETED JOURNEY THROUGH SCIENCE, CULTURE AND SOCIETY

By Dr. Rajni Vohra

Fluid Memories: My Childhood Connection With Water

During my childhood, I vividly remember being introduced to the concept of water as H2O in my primary classes, where just three atoms were said to constitute water, two hydrogen atoms and one oxygen. I was utterly astonished; it was challenging to fathom how something as essential and fundamental as water could be summarized in just two letters and one number. This feeling was particularly profound for me because I come from a cultural background where water holds immense significance —it is revered as a deity, integral to various rituals from birth to death.

As I grew older, my understanding of water deepened through diverse academic disciplines, including biology, environmental science, social science, geography, and even political science. Each subject offered a unique perspective on water. In biology, I learned about the human body's composition, primarily water, highlighting our intrinsic connection to this vital resource. Botany further emphasized the symbiotic relationship between plants and water, showcasing how even in arid regions, plants adapt to conserve and utilize water efficiently. I found the resilience and adaptability of desert flora, especially cactus species, fascinating.

Geography has always depicted the diverse landscapes of our planet with distinct markings for water bodies, forests, and soil, teaching us about the abundance of water on Earth yet its limited potability. History further enriches our understanding, illustrating how rivers like the Ganges and Yamuna are revered, why Punjab is named as "Punj"(five) +Aab (water) =Punjab, representing the Satluj, Ravi, Bias, Jhelam, and Chenab rivers. It also elucidates the emergence of civilizations around rivers like the

Earth with different colors

Cactus

Indus, Rhine, Nile, Volga, Danube, Mekong, Yangtze, Thames, Congo, Rhone, Rio Grande, Amazon, Mississippi, and others, highlighting the vital role water plays in sustaining life across diverse cultures and regions. These narratives portray a positive perspective on the value of water and its profound impact on human existence. Political science shed light on the contemporary challenges of water allocation and management, illustrating conflicts between states and nations, both domestically in India and globally. Whereas in social sciences,I learnt about the plight of women in water-scarce regions; it unveiled profound hardships, highlighting the intersectionality of gender and environmental issues.

Drops of Wisdom: Flowing Through Life

As I transitioned into adulthood and embarked on journeys across India, and abroad, interacting with intellectuals and experts, I began connecting these disparate insights, weaving a comprehensive understanding of water's multifaceted role in shaping human societies and ecosystems. This journey led me to appreciate the critical importance of water, not just as a physical resource but as a symbol of life, sustainability, and inter-connectedness.

"There is no life without water." - Albert Szent-Györgyi

Being inherently fascinated by nature and its intricacies, I firmly believe that the universe facilitates connections among individuals who share similar passions. I found myself deeply engaged with Violeta Bulc and her

initiative, Ecocivilisation, which has profoundly enlightened me in myriad ways. Serendipitously, the focus of Ecocivilisation for the period 2023-2024 revolved around water. Throughout this time, a series of webinars were meticulously organized, featuring esteemed experts from relevant fields, thereby enriching my understanding and connection with the theme. These webinars delved into the profound relationship between water and our existence, focusing on various facets -sustainable water management, responsible investments, water governance, geopolitical scenario, legal water rights, circular economy practices, gender equality, and the rich tapestry of culture, rituals, and traditions.

These webinars have provided me with a comprehensive understanding of the global water landscape, encompassing its challenges, climate implications, impacts on women and children, and strategies for mitigating these challenges. Allow me to share this holistic perspective with you.

Climate Change Impacts on Water Resources

Climate change has significant effects on water resources in various regions, impacting communities in Africa, Asia, and Europe. I remember one speaker pointing out during webinars discussing Spain's water challenges due to climate change, which resonates not only in Europe but also in regions like Africa and Asia. The warming climate in the Mediterranean area has widespread consequences, affecting more than 100 million people. This impact is not limited to Spain but also affects countries along the Mediterranean coast in North Africa and Southern Europe. The effects are complex, affecting not only water availability but also tourism, an important economic sector for many countries in the region. In Africa, rising temperatures are also causing challenges to water resources. I see this especially evident in the form of prolonged droughts and water scarcity due to erratic rainfall patterns, impacting agriculture, livestock, and access to clean water for millions of people. Ethiopia and Kenya, for example, are facing recurring droughts that are affecting food security and livelihoods. In Asia, the melting glaciers in the Himalayas are leading to fluctuations in river flow, which in turn affects water availability for irrigation and hydropower generation in countries

like India, Nepal, and Bangladesh. Additionally, variations in the monsoon and rising sea levels are threatening coastal regions, such as in Bangladesh and Vietnam, resulting in saltwater intrusion and the loss of arable land. Overall, these environmental changes have far-reaching consequences for communities across Africa, Asia, and Europe. Across Europe, shifts in rainfall are leading to increased occurrences of severe floods and prolonged dry spells, disrupting water availability and ecological balance. These instances highlight the wide-ranging and interconnected ramifications of climate change on water reservoirs, underscoring the critical importance of implementing worldwide measures to adapt and combat the effects of a changing climate.

Water Distribution Disparities and Social Tensions

I can't forget to mention the conflict that I have witnessed since childhood over the Kaveri River between Tamil Nadu and Karnataka in India that highlights the disparities in water distribution and social tensions. This long-standing dispute revolves around sharing water resources and has led to legal battles and social unrest between the two states for decades. The scarcity of water in some areas has exacerbated these conflicts, emphasizing the importance of fair and sustainable water management practices. Also, I can’t deny that in India, disparities in water access are evident between urban and rural areas, leading to uneven distribution of clean water. This not only causes friction within communities but also worsens economic challenges. In various regions of Africa, the issue of water scarcity and unequal distribution has caused conflict and instability. For instance, some speakers talked about conflicts that have arisen between some communities over access to water resources, resulting in violent clashes in countries such as Kenya and Nigeria. In the Middle East, the division of water resources among neighboring nations has been a long-standing source of tension, leading to disputes and complex water-sharing agreements involving countries like Israel, Jordan, and Palestine. This pattern is echoed worldwide, as countries grapple with similar challenges related to the unfair allocation of water resources, which can breed social unrest and strain diplomatic relations, underscoring the need for fair water-sharing agreements.

Women's Role in Water Collection and Management

As I mentioned before about my Indian roots, where water has been intricately woven into the social, cultural, and religious fabric since time immemorial. However, the stark reality is the severe drought conditions affecting numerous states, disproportionately impacting women and girl children.

In rural India and African regions, unequal and illegal water distribution is a major problem that worsens the scarcity of water resources. This issue disproportionately affects women and girls, harming their physical health and limiting their access to education, which creates a cycle of deprivation. Efforts to promote gender equity in water-related resources and activities, ensuring universal access to clean water for women to improve their quality of life, seem to be a persistent challenge. Despite these obstacles, there is hope as innovative approaches and NGOs are emerging to help women and communities in need in these areas of India, offering solutions to address water scarcity and its broader socio-economic impacts.

Cultural Transformation of Water Rituals

I've observed a fascinating cultural transformation in India regarding water rituals. Traditionally, these rituals were deeply rooted in reverence and respect for water, symbolizing purity and renewal. However, in recent times, I've noticed a shift in how these rituals are practiced. Rather than the gentle and mindful sharing of water, which was once the norm, there's now a trend towards more exuberant and sometimes wasteful practices. For example, during festivals like Holi, the traditional ritual of using water in a respectful manner has evolved into forceful water spraying, often leading to water wastage and pollution. Recently, water shortages from using have prompted many individuals to refrain from using water during Holi celebrations. While this trend brings a sense of relief, knowing that water conservation efforts are being acknowledged, it also evokes concern about the broader implications of climate change.Let me also add that in water webinars, some speakers from countries like indonesia and Gambia expressed the concern over polluting rivers, calling for efforts to protect water resources for future generations.

Ganga Worship

Mitigation Measures- Sources of Hope

During the webinar series on water-related issues, experts provided pragmatic advice on mitigating water-related challenges. For example one of the webinars “Water Risk Reduction”, which focused on minimizing threats like water scarcity, pollution, flooding, and inadequate access to clean water, speakers highlighted key strategies. These included advocating for water conservation practices, emphasizing the importance of infrastructure development such as dams and water treatment facilities, implementing effective water quality management measures, and emphasizing the need for robust policy frameworks and governance structures. The discussions underscored the significance of these mitigation strategies in addressing the complex challenges associated with water resources management:

Disaster Risk Reduction (DRR) is a key pillar of sustainable development that leaves no one behind.(Dr. Alice Bouman-Dentener)

Water and Hope

Another webinar that presented solutions was “Circular Economy and Water” where speakers gave detailed-oriented examples of circular water management, including urban water regeneration, bio-factory wastewater treatment, nature-based solutions like floodable parks, and water reuse in buildings and emphasized on legislative advancements, collaboration, and investment, which are crucial for widespread implementation to address impending water scarcity.Whereas some highlighted the importance of changing perceptions regarding water and emphasized the significance of reconnecting youth to nature. Not to forget the role of sustainable investments in water management that plays a crucial role in enhancing water infrastructure, promoting water conservation practices, and fostering equitable access to clean water for all communities.As highlighted by one of the speakers during a webinar:

“Governments and stakeholders must actively engage in unlocking finance for sustainable water management. This involves crafting policy frameworks that fortify the investment-enabling environment and developing innovative financing mechanisms”(Dr. Andreja Kodrin)

One of the most captivating developments amidst these challenges is the growing adoption of circular economy practices aimed at conserving water resources. Collaborations between new-age social activists, engineers, NGOs, and government agencies are playing a pivotal role in implementing innovative solutions. Every session ended with a call to action for the welfare of the entire globe, recognizing water as everybody's business and highlighting the need for collaboration beyond individual efforts.

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ABOUT THE AUTHOR

Dr. Rajni Vohra, a seasoned entrepreneur, humanitarian, trainer, writer & marketing professional with an extensive track record spanning over two decades. Worked with diverse teamsacross various domains, including marketing, training and development, Advocates passionately about gender equity, cultural diversity, the circular economy, Ecocivilisation, education, equal opportunities and the rights of individuals with disabilities, Founder of WahWoman, a global platform to amplify voices of women leaders dedicated to empowering women. Working as; Curator for Projects & Collaborations' at Ecocivilisation. Also founder of "Demuse Lifestyle Range" to promote sustainable lifestyle and work of women artists.

WATER AND SOCIETY

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AN UNFOLDING STORY:

FLOWING LIKE WATER WRITTEN FOR VIOLETA

By Annette Frederking

www.grandmotherswisdom.org

In 2004 an old and worldwide known prophecy and vision became reality, that said that thirteen tribal Grandmothers from all four directions would align themselves in a time of great planetary distress and the International Council of the 13 Indigenous Grandmothers was founded. The Grandmothers came from all around the globe, and they traveled to all continents to weave their prayers and spiritual traditions together. They gave their unique gifts, spread their wisdom and the message of peace, love, and hope. To learn more about them, go to:
https://www.grandmotherswisdom.org/

Their oldest member was Grandmother Agnes Baker Pilgrim. She was born in Oregon on a tribal allotment at the headwaters of the Siletz River in 1924. And she was the oldest living member of the Takelma people, who had lived at their place for 22,000 years.For thousands of years, my people, the older ones, did the gathering of the salmon and had a big feast and all types of people came. They did the gathering before anybody started fishing, to honor the salmon so that the Creator would bless them and the salmon would come home.

They hadn't done this gathering for a very long time, and in 1993 the spirit told me to bring it back. Now, for over twenty years, the Creator has helped bring the yearlings back up the river. …

In 1994 we restored the Sacred Salmon Ceremony for the first time in the history of southern Oregon. In 1995, a person from the state fish and game department came and said,"I don't know what you have done over here, but there's more fish than we've seen in that river for a long time. I said, "When you teach reciprocity, then the Creator blesses." (Grandmother Agnes Baker in Pilgrim in the book, Grandmothers Wisdom)

In 2019 she passed at the age of 95 into the world of her ancestors. But follow the story and experience that she is still with us in spirit.

Grandmother Agnes visited the place of the famous Externsteine in Germany together with Grandmother Flordemayo and Grandmother Mona in 2010.

At the Externsteine she celebrated with hundreds of people a water ceremony. Everybody was invited to give her/ his prayer and to bless the water. Later we brought the sacred water to all our places, lakes, rivers, ...We still hear her saying: We are all water babies. Water has ears. "Inspired and initiated by these wonderful indigenous Grandmothers, our Circle of Grandmothers at the Externsteine was founded at the end of 2012.
(www.grossmuetterkreis-der-externsteine.de)

Externsteine – Horn-Bad Meinberg German (Source:Global Grandmothers)

Since then, we celebrate the festivals of the seasons, and we also offer several water ceremonies, for example in cooperation with water-songline.

In 2022 we got the call, to create a geopuncture installation together with UNESCO Artist for Peace Marko Pogačnik from Slovenia and an international artist group of LifeNet in gratitude for the 13 indigenous Grandmothers and all the gifts they gave and still give to humanity and Earth/Gaia. We were inspired to write 13 themes/ invocations of female powers, and each was mainly inspired by one indigenous Grandmother.

Grandmother Agnes called us from the World of Ancestors and wanted us to hold a Council in Spirit together with all artists. The artists' task was to translate the given words into cosmograms (a universal language capable of reaching out to all creation). She guided us and our work intensively. Ivana Petan was called by Grandmother Agnes and created the cosmogram:

Source:Global Grandmothers

"She, who gives her voice to the beings of Earth and Water.
Storyteller and Wisdom Keeper, that is, what she is.
She takes the peace pole and gives a powerful call:"Remember!
We all are water-babies and children of the earth!
Remember this for the next seven generations!"

The geopuncture installation was done in September 2022. Shortly afterwards, in the end of October 2022, we did a ceremony for and with the ancestors and descendants at the Externsteine. The urgency of peace in Europe wanted to be considered again, and it showed up that the water may play an important role. We were told to give our attention to the big European rivers and try to find out what each one of them can contribute as a “water-being” to peace and well-being of Europe, if we humans are willing to listen and co-operate. Rivers flow regardless of official borders. We were called to visit the sources of the river Rhine, Elbe, Danube (they have their estuaries or source in Germany) and do “few-day-pilgrimage” along the rivers starting at the source. While walking we will give our whole attention to them, listen to them. Our plan is to start these pilgrimages in 2023.

https://www.europakarte.org/fluesse-europa/

I had to tell it, and somehow Grandmother Agnes Baker Pilgrim and Our call was strengthened by a woman from Switzerland with her husband from France, who had heard of us and the ceremony, and they were told by spirit to bring water of the source of the river Rhine (in Switzerland) to us and the lake at Externsteine. This was magical: We didn‘t knew us before, and they knew nothing about our call of the European rivers. Sources are sacred places – gifts from Earth/Gaia, that nourish many countries and all their inhabitants - human or not human.

And the story went on. Shortly after the ancestor ceremony at Extern-

steine Ivana Petan met you, Violeta, and you spoke about the geopuncture and the work of the Grandmothers and by this the connection was made to the Year of the Water 2023 of Ecocivilisation.
Can you feel the force behind the story?
m is pushing me to be courageous enough to do it.

My/our task is to spend time in nature and with the rivers in 2023 - the year of the water 2023 of Ecocivilisation - and maybe this and the story I am telling will fulfill the purpose of our connection. We grandmothers aren‘t able or willing to join the online program. But we saw that for October 2023 the theme of rituals and ceremonies is given. Maybe we can do a water ceremony here at the Externsteine together with some Grandmothers of the European Council of Grandmothers https://councileu-grandmothers.eu/ and in connection with you and your movement. Till then, we will hopefully have done one or more pilgrimages for the sources and rivers . We/ I see, that your program covers a lot of very important water themes and we really wish you a lot of support, creativity, people of good will, to bring clear and fresh water back to all beings.

In the name of the Grandmothers, Annette !

Annette Frederking (Global Grandmothers)

Photo Credit -Deirdra McMenamin Artist™ © Deirdra@duck.com

WATER AND PEACE

INTRODUCTION

By Dr. hc. Violeta Bulc

In a world where everything appears to be commodified, assigned a price tag, and market value, humanity is striving for new foundational principles for the future. Water and our connection to it represent a critical element around which values and inspirations are cultivated.

The Ecocivilisation movement extends a sincere invitation to explore ways of declaring global stewardship over water resources, shielding them from commercial exploitation and ownership claims.

We find ourselves ensnared in prevailing ownership paradigms. For the first time in history, the entire planet is claimed. Let us remember that nature, including water, animals, and plants, does not comprehend the notion of ownership; it seeks free flow based on climate and weather conditions as fundamental laws of nature. However, for humanity entrenched in current dominant values, static structures, and determined international arrangements, challenges of this nature often breed conflicts and wars. Such cross-national relationships cannot foster successful sustainable development and geopolitical stability.

The data substantiates this vision even more strongly. Today, transboundary watersheds cover half of the global surface area. There are approximately 300 transboundary groundwater resources, 263 transboundary rivers and lakes in 145 countries. To underscore the point further, 40% of the global population resides in transboundary basins. All of this is increasingly significant given the accelerating changes in climate and weather conditions worldwide. If these challenges are not addressed deeply and systematically, they will only intensify.

The Holocene era of stability and predictability is drawing to a close, ushering in a transformative era characterised by unforeseen shifts and changes. The pattern of wet regions becoming wetter and dry regions

becoming drier has long been forecasted[1]. Our ignorance and lack of focus on resilience, coupled with sustainable development, are further destabilising existing relationships.

We have a duty to life itself and to redefine our relationship with its critical enablers, such as water. It is imperative to ensure that water and other essential life sources are freely accessible to beings that sustain life on this planet.

Considering all the above, it is clear that issues related to water are issues about peace and prosperity not only of humanity but the entire planet Earth.

Water Diplomacy

Water diplomacy holds significant potential in forging pathways towards peace and global prosperity[2].This emerging concept addresses the political dimensions of transboundary cooperation, linking water management with broader regional cooperation, geopolitics, and foreign policy.

It represents a culmination of global insights in the form of "water democracy." Water democracy can be characterised as utilising diplomatic instruments to address existing or emerging disagreements and conflicts over shared water resources, with the goal of fostering cooperation, regional stability, and peace.

I would venture to propose an expansion of this definition to include a spiritual dimension that recognizes our interconnectedness on a level consistent with the laws of quantum physics.This acknowledges the

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1. Intergovernmental Panel on Climate Change (IPCC) reports
2. Water diplomacy can be defined as the use of diplomatic instruments to existing or emerging disagreements and conflicts over shared water resources with the aim to solve or mitigate those for the sake of cooperation, regional stability, and peace. https://globalwaterforum.org/2018/08/31/what-is-water-diplomacy-and-why-should-you-care/

profound connectivity of all beings and elements, underscoring the intrinsic unity of everything.

Collective Responsibility

Water is a collective responsibility that demands our attention due to its multi- dimensional role and properties. If we fail to address these aspects, it could become one of our greatest challenges. Water not only sustains life but also presents existential threats that are deeply embedded into every facet of society including the economy, politics, social welfare, health, and more.

The boundaries of our civilization have been pushed to the brink by the challenges of climate change. This presents us with a unique opportunity to establish a new foundation for the next phase of civilization, drawing from the accumulated wisdom of diverse cross-cultural experiences, both painful and joyful, distilled into an ancient yet forward-looking perspective shared by all beings who have called Earth their home. If only we could tune into the whispers of collective consciousness.

Many of us retain vivid memories of a more profound relationship with the energy of water, waiting to be revived and cherished again.

As stated by Dr.Ursula Schafer Preuss, one of the speakers at Ecocivilisation Talks[3], “I remember that as young children we could swim in the river, fish for our daily consumption, there was a real ice in the winter”. Due to industrial interventions and the increasing presence of chemicals in rivers spanning from the South to the North, fish populations are dwindling, and the rivers are no longer suitable for swimming. This disruption has also affected our ability to rely on seasonal food sources. However, we are aware that we can take more effective action to address these challenges and restore balance to our water ecosystems. Collaboration and cooperation is at the core of those solutions.

There are compelling instances of successful transboundary cooperation, well-crafted policies, strategic investments, and growing

3. https://www.youtube.com/watch?v=xZmcTZ8R64I u-care/

water diplomacy, all underpinned by a rising collective awareness. These efforts are shifting us from mere recommendations and theoretical frameworks to concrete actions that align with globally agreed UN agendas, particularly those related to sustainable development goals where water plays a central role.

However, achieving sustainable results requires more than just structural changes;it demands personal commitments and a genuine receptiveness to local voices, while also learning from community-based knowledge and generational wisdom. Too often, community-based science and traditional insights are disregarded in favour of short-term profit-driven approaches that overlook long-term sustainability.

Understanding the cultural and social dimensions of water, and its fundamental role in fostering prosperity and development within societies, is therefore essential. By embracing this holistic perspective, we can cultivate enduring solutions that honour the interconnectedness of water with human well-being and societal advancement.

As hrh.Dr.Nisreen El Hashemite said[4], “With water the journey of humanity has started. Water as a human right for everyone is the biggest challenge facing humanity. If you look closely to water, if you know the role of water in social and economic development, if you learn to appreciate the beauty of water, and how-to live-in harmony and respect with fellow humans and nature, if you understand that water is the source of life then you will value water equality”. Following that path our actions will result in peace and prosperity for all.

Dimensions Of Water

Water is truly a marvel of life, and there is much about it that remains unknown to us—its properties, behaviours, and profound impact on our existence. As Aaron Wolf, a water diplomat, aptly describes, there are four distinct dimensions of water.

Firstly, there is the physical water—the water we can move, see, and

4. https://www.youtube.com/watch?v=xZmcTZ8R64I

touch. This is the tangible aspect that we interact with daily.

Secondly, there is the mental water—the water that we quantify, calculate, and assign value to through pricing and efficiency considerations.

Thirdly, there is emotional water—water that is intertwined with concepts of sovereignty, power, and history. This dimension of water carries deep emotional and cultural significance.

Lastly, there is the spiritual aspect of water—an understanding that all elements of the natural world are interconnected and part of a collective life force. This spiritual dimension involves recognizing our role as stewards of natural treasures, ensuring their preservation for future generations.

The key lesson here is the importance of comprehending all four dimensions of water to effectively address the multifaceted issues associated with it. By acknowledging and integrating these dimensions into our approach towards water management and conservation, we can foster a more holistic and sustainable relationship with this vital resource.

And as Prof.Dr.Eddy J. Morse said, “The understanding of all dimensions of water determines the value of water and helps to appreciate water much better. We are not going to be able to do this ourselves. It is something we need to do together. I think there is still a lot of other knowledge within the world. So, I would very much welcome to connect all those networks.”

Conclusion

Here we stand, at the dawn of a new era. In this turbulent and unpredictable VUCA (volatile, uncertain, complex, ambiguous) world, we are presented with a significant opportunity to redefine our foundational principles—to shift from mere ownership to responsible stewardship of life's most vital resources. By sharing and ensuring access to these resources as basic human rights, we can truly give life a chance to thrive.

The Ecocivilisation movement is committed to creating a space where such transformative efforts can emerge and cross-pollinate, fostering collective action towards sustainable stewardship and equitable access to essential resources.

ABOUT THE AUTHOR

Dr.hc.Violeta Bulc, is the founder and curator of the Ecocivilisation movement. In less than four years, the movement under her leadership has grown into a global community that is already present in 46 countries and connects more than 2,500 active people in various fields that influence the co-creation of our common future and present. Her career consists of different layers, which include the mandate of the European Commissioner for Transport, the position of Deputy Prime Minister and Minister for Cohesion and Development, a 14-year career as an entrepreneur, a 5-year career as a director in the field of tele-communications and a few years of an engineer's career with extensive experience in the field of computing and informatics at home and abroad. She is the recipient of various national awards and prizes in the field of innovation and development of strategic business projects, publicist, author of the bestseller Rhythms of Business Evolution and co-author of chapters in various books and professional publications. Her wide experience was richly supplemented by the Shaman Academy and the Academy of Martial Arts. She is an active member of many international professional and supervisory boards at the international, European and national level. She describes herself as a traveler through space and time, on the wings of curiosity and love.

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WATER

THE WAYSHOWER

By Eleftheria Kakambouras

Water. (English. Afrikaans) Nero. (Greek). Wasser (German). Voda. (Slovenian). Uisce. (Irish)

It is, at the precipice of a watershed moment in my personal life, that I write this article on water. It is not lost on me that the convergence of water, climatic extremes, and Ecocivilisation's mission to create a new way of being with our world, that synchronicity reflects the power of water in my physical reality.

Water has been an intimate companion in my life this year of 2023.

In January, a trip to Cairo introduced me to the current state of the Nile. In April, I scattered my beloved mother's ashes in the Atlantic Ocean in Cape Town. In July, a thunderstorm with torrential rain ripped the roof off of our home in Slovenia.

Water gives life, and takes life. We are born from it, and we return to her. It is powerful beyond measure. In ways we have forgotten, it connects us to our ancestors. Without her, nothing will flourish and we will cease to exist.

Cairo, The Nile

I stood completely frozen next to the renowned Nile, once revered, life-giving, brimming with thriving ecosystems, and appreciated for the fertile soils deposited by the yearly floods on the plains. Gifting Egypt and her people three harvests per year. Now, a shadow of what it once was. Shocked at the state of this once mighty river - dead, disrespected, surrounded by waste, smog, cigarette buds, and tourist boats, I experience a pain deeper than I've felt before.
How did this happen?
Why has it happened?

How could this happen?

These questions were circling within my mind and ached in my body, as I walked through the museum, taking in the advanced agricultural tools, and cultural ceremonial practices of the ancient civilization that once revered the Nile for her life-giving fertility.

With a heavy heart, I decided to sit in meditation, to connect with the spirit of this land, to ask the questions, I even asked the goddess Isis to answer me… The impressions I received were sobering.
“When you cut off the natural movement of the Nile, you cut off the life flow”
The Nile used to move kilometers either way of its banks, like a snake undulating in slow motion through time across the plains.

“This flowing movement is the feminine energy. When we cut off the feminine flow, we cut off life itself.”

I believe that we are all inextricably connected, and connected to a power much greater than ourselves, which is rooted in Love. As above, so below. As within, so without.
After this meditation, I contemplated the question with compassionate self-inquiry:
How have I cut off the flow of life force in my own body?
Where have I blocked the feminine flow of energy in my body and in my life?

This inquiry brought to my attention the places within myself I had neglected. The places within my inner landscape were yearning for nurturing, sustenance, and flow.

I was reminded of a conversation I had years ago with a friend who is an Andean Shaman. She told me that one of the teachings of the Quero people is that “If we correct our thinking, we will clean up the water.” It seems so simple, yet, completely attainable for us to do.

Floods In Slovenia

I have deep respect for the power of water. We can't live without her, she replenishes our bodies but can also cause immense damage - erosion, tsunamis, thunderstorms, hail, floods. In my case, a thunderstorm, accompanied by 120 km winds peeled our roof off, as effortlessly as opening up a tin can. It only took a few seconds.

The fire station commander of the region told me that this extreme weather is caused by the cold air from Austria which is colliding with the heat from Italy and Greece, and meeting in the middle of Slovenia, creating intense thunderstorms.

The hard questions I am reflecting on, are:
Is this our new normal?
Everyone tells me that this type of storm is not normal for Slovenia, and has never happened before.
Is this true? Is it a cyclical weather pattern from 100 years ago that no one remembers? Or is this the effects of a changing climate?

I'm not sure if this is climate change, a normal older weather pattern, or dare I say geo-engineered weather.

What I am sure about, is that we need to meet these extremes with the appropriate preparation, paradigm shift, and conscious action.

Our experience was a shock, however, we got through it only with the immense support of the community surrounding us. Community, in life events like this, is our lifebuoy.

Having the support of a community builds a sense of resilience in us. Whilst feeling supported you can rest, to let the shockwaves move through you, so that you can bounce back into rebuilding. Without having this moment to restore, we will burn out, be left hopeless, and give up.

In many ways I think that a large majority of our global population is living a disconnected, and consequently isolated life. This creates a sense of not feeling safe, and the psychological impact of this is perhaps the driver

for not caring about the world around you.

If we want to call for change, it starts with being villagers - helping one another, for no other reason, other than a code of conduct. One which our ancestors in villages would have honored.

When natural disasters happen, we walk the emotional path of holding both grief and gratitude as our companions and guides. We grieve what was lost, and we awaken to the gifts - the kindness of strangers, the ordinary we take for granted, the innate resilience within us, and the solidarity of the community surrounding us. We are in this journey called life, together.

A Body Of Water Brings All Life Together

The watering hole in the Kruger National Park at dusk is a gathering place for elephants, lions, bucks, hippopotamuses, crocodiles, and birds. The pond in your garden is a gathering place for frogs, snakes, birds, insects, dragonflies, and plant life.
So, are the rivers, and the ocean…

And all of these bodies of water attract us, human beings alike. We somehow find peace, solace, and restoration near the water.
Now, in the wake of bursting river banks, oceans rising, torrential rainfalls, water, once again is bringing us back together.

In the aftermath of natural “disasters,” people come together in solidarity. Villagers help one another, neighbors rescue each other, and our hearts open up. We are reminded of what it means to be human.

In the aftershock, we remember what is most important. In likeness to the myth of Persephone who is swept into the underworld. When an event suddenly rips the carpet out from underneath us, we let go of the daily race of existence, and we start to embody what it truly means to be human. Persephone learns how to navigate the underworld, and returns in Spring when life starts blooming again.

Perhaps we could learn from this myth, that our preparation for the

transitory world we find ourselves in, invites us to learn how to navigate the storms of life, so we too, can emerge with newfound wisdom.

Is water - the same water our ancestors drank, bathed in, and lived with - reminding us that our obsession with progress is not the way forward? But rather, truly our way of being is compassion, and connection, to live in harmony with one another, to stand together, care for each other, and be tender with the living ecosystem which we depend on for survival.

Since our experience with the gale force winds, and floods in Slovenia, floods occurred in the Western Cape in South Africa a few months later. I'm receiving calls from my clients asking - "how did you do it, I need help."

My advice is to open-heartedly walk the path of grief and gratitude.

Acknowledge that your innate resilience kicked in, and you grabbed what was most important and you got out.

Open the flow of the feminine receptivity within, and allow others to help you. And if you can, help others too.

We need to re-educate ourselves on how to help others in situations like this and self-organize in the most efficient ways.

Who are the single people who are going through this without families?
Identify what is needed, before offering what you think is needed.
If you're not affected, think of the person who is operating from their fight, flight, freeze, fawn, fatigue stress response - they'll be in shock, and can not think clearly.

When daylight broke, three hours after our roof was gone, one of our most precious first gifts (and there were many) we received, was a neighbor who stated clearly:
"Today you will come eat lunch with us, and then dinner, and then tomorrow, you will eat lunch and dinner with us. You don't have electricity, so you can come to us to bathe, and do your laundry".

We didn't even give a thought to food, and it was deeply appreciated that we could simply deal with stopping further damage to our home first, and know that the energy our bodies required was being covered by our kind friends.

Stay with the discomfort of fearing water, wind, or fire - and then release it. The truth is we fear Mother Nature's power - as a reflection of fearing our power.
Mother Nature is not to be feared, she is to be revered.

She is bringing us to a humbling point, in remembering our place in the ecosystem. We are not gods. We are part of something much greater and bigger than us, collectively. Our small part in the magnificent fabric of life's tapestry, matters. What we choose now, matters.

Water And Jungian Dreams Symbolism

I fondly remember my first mentoring session with my late mentor, Dr. Graham Saayman, Jungian Psychoanalyst and co-founder of "The Jungian Dream Appreciation Method".

His question to me was: "How do you feel about the ocean? " I have a deep respect for the ocean and love swimming in it. My respect comes from a near drawing in the Indian Ocean when I was two years old. I was swept into the ocean by a strong current, and luckily a seasoned swimmer saved me and brought me back to my mother on the shore. I'm grateful that despite this event, I continued loving the ocean and didn't develop a deep fear of the ocean or swimming, but rather a respect for her strength.

My mentor continued to explain that our feelings about the ocean can represent our unconscious beliefs about death. If we fear the ocean, we will likely fear death.

"Water, particularly deep water, usually has a maternal significance, roughly corresponding to "womb". - Carl Gustav Jung (Collected Works, Vol 5, par. 407)

In Jungian Therapy, water is a powerful, multi-faceted symbol, often significant to the interpretation of the meaning of dreams. Water is essential for life, and a fundamental human need. Our bodies also contain a large “body of water”. The water of life which we yearn for, can perhaps relate directly to the waters of the unconscious. When we come to terms with the meaning of our dreams embodied in the unconscious, we can find the vitality and zest for life that we yearn for.

The symbolism and psychological meaning of water in dreams are boundless. It is the primal origin of all things, symbolizing potentiality, removing contaminants, maintaining life, and alchemy in terms of the collective unconscious symbolism of water in baptism and the cycle of rebirth through destruction and resurrection.

To keep this article short, I will share a “drop of the ocean” below.

Bodies Of Water And The Unconscious

Large bodies of water, such as oceans, lakes, and pools, often symbolize the unconscious. We often see the surface but struggle to see into the depths.

Carl Gustav Jung observed that the unconscious mind was vaster than the conscious mind. Today, his insights have been confirmed by the development in neuroscience, through which new technologies, such as the MRIs have enabled neuro-scientists toobserve that the activity of the unconscious processes of the brain greatly outweighs the conscious minds.

In turn, the symbolism of the ocean reflects the vastness of the unconscious mind.

Perhaps, the presence of water in our current lives is an invitation to dive deeper into the depths of our oceanic unconscious - to heal, to rediscover, to embody the truth of who we are…

The River

The river is one of the most frequent symbols encountered in dreams.

The characteristic of the river is the power of the flow of water in a definite direction. This symbol embodies the flow of life, or in Jungian terms the “teleology” , the goal-directedness of the psyche, and the path of flow of our lives.

Rain

The symbol of water as rain is associated with the bringer of fertility to the earth, crops, and vegetation, and is a pivotal aspect of our experience of water. In cultures with limited rainfall, we observe an accompanying god of rainfall, usually a key figure in the pantheon. An example would be Chac, the Mayan god of rainfall.

Since this rain is vital to fertility, this symbol in the meaning of dreams reflects abundance.

Mythology and Water Goddesses

In all ancient cultures, and even today still, the element of water has been personified with a goddess, reflecting the importance of this invaluable element in everyday survival.

For millennia water has been associated with feminine energy and connected with all aspects of the goddess. Water has been used for healing, cleansing, and purification rituals in almost all cultures globally. In many spiritual practices, consecrated water can be found, blessed holy water for baptism, invocation of water for prayers, or rituals to connect us with our ancestors.

There are water goddesses representing sacred wells, lakes, rivers, the sea, and the immense oceans that cover our beautiful blue dot planet. Often associated with fertility and creation myth like Nammu the Sumerian deity who represents the formless waters which birthed the universe into being.

Just like nature, the water goddess portrays both the positive and negative attributes of water.

As an example, the Nile Goddess Anuket was worshiped as her floodwaters brought water and fertile silt which enabled the crops to grow abundantly. In contrast, the Mayan deity Ix Chel was often feared for the destructive storms and tides she brought.

Goddesses reflect or mirror the whole cycle of life, and therefore also include water goddesses that are associated with death, like the Greek goddess Styx, the personification of the underworld river that separates the living from the dead.

As a point of interest, to illustrate the various goddesses in various cultures, and reflecting upon our collective connection point as water, here are some examples of the water deities from different cultures around the globe:

Sea Goddesses:

Aphrodite (Greek) – She is often associated with the ocean as she was born out of
sea foam.
Brizo (Greek) – Sailors made offerings to her to ensure safe passage.
Cymopoleia (Greek) – Daughter of Poseidon and the Goddess of storms.
Doris (Greek) – She personified the sea's abundance
Keto (Greek) – The marine Goddess of sea monsters.
Eurybia (Greek)Daughter of Gaia, Known for her mastery over oceanic forces–wind, currents, and storms—the ancients regarded her as a a goddess to whom even the wildest waters showed obedience.
Mazu (Chinese) Mazu takes the goddess form of the legendary shamaness, Lin Mo Nian. Tradition considers the coastal island of Meizhou Island her birthplace, where she probably lived around the 10th century AD. Today, the worship of the Chinese
ocean goddess continues, especially in Taiwan, where her temple festival is celebrated.
Yemaja, (Yoruba tribe of Africa) was originally the orisha of the Ogun River (the largest river in Yoruba land) but became the orisha over the sea waves by way of the Trans-Atlantic Slave Trade. Originally was the metaphysical mother of all the Orishas.In some traditional myths, she is the co-creator of humans with Obatala.

Salacia (Roman) ocean goddesses, the ancient worshiped Salacia as the goddess of saltwater. Depicted as a water nymph of great beauty, she often appears in art with a crown of seaweed. She symbolizes grace, sunlight, and open waters.
Mokosh (Slavic) - (Mokysha, Mokush) The Slavic goddess who both gives and takes life, the spinner of the thread of life, the giver of the water of life. Mokosh later became Paraskeva-Piatnitsa, a goddess of spinning, water, fertility, and health with marriage.

River Goddess

Anuket (Egyptian) - The Nile River Goddess, associated with fertility and prosperity.
Boann (Celtic) – Goddess of the River Boyne in Ireland. Like many water Goddesses, she is linked to fertility and inspiration.
Brigantia (Celtic) – Several rivers are named after this Goddess of flowing water including the River Briant and the Brent.
Ehuang (Chinese) – One of the Goddesses associated with the river Qiantang.
Ganga (Hindu) – The personification of the most sacred river in India, the Ganges. She has the power to cleanse away bad karma.
Isis (Egyptian) – This famous Goddess was born in the swamps of the Nile.
Kupula (Slavic) also known as Sobótka, her name means “to bathe”. Her devotees bathed in rivers and June morning dew, and cast flower offerings upon the water. Goddess of water, summer solstice, and herbal lore. Kupula personifies the magical and spiritual power inherent in water, and Kupula's devotees believed that water healed and purified. Since fire as well as water has powers of purification, her worshippers also danced around and leaped over huge bonfires. Kupula followers preserved an extensive lore of magical plants and herbs.
Sequana (Celtic) – Goddess of the mighty River Seine.
Sinann (Celtic) – Irish Goddess linked to the River Shannon.
Styx (Greek) - Not all river Goddesses are associated with the life-giving qualities of water. Styx is the river that separates the living from the dead.

Sacred Lakes and Spring Goddesses

Coventina (Roman) She is the Goddess of the sacred spring sited next

to Hadrian's Wall.
Juturna (Roman) – Goddess of fountains and wells.
Lady of the Lake (Celtic) - She gives Arthur the magical sword Excalibur. She is known by many different names including Ninianne, Viviane, and Nymue.
Nerthus (Nordic) – The Goddess of sacred lakes and springs.
Sulis (Celtic) – The Goddess of the healing, thermal, springs in Bath.
Živa (Slavic) - also known as Siwa, Sivve, Shiwa, Sieba, Syeba, and Dsiva. She was the goddess of fertility and love, the greatest female deity in the pantheon of Polabians. The 18th-century Slovenian historian, Tomaž Linhart, writes: "Shiva, goddess of life; she was worshiped by Polabians. Raniolans have given this title to the planet Venus." To the people who venerated her, she represented the concept of life, personified by water itself. She was their first "goddess' ', the sovereign, associated with life-giving water, even before Mother Earth, who became imperative when the spread of agriculture followed.

Our earth is a closed system with finite resources. The most precious resource is water, the source of all that exists.

This inspires me to treat water with respect and love. It connects me with my ancestors and descendants. I am in awe, am in awe, that the water I drink, bathe in, waste, recycle, nourish my garden with, swim in, is the same water that my great-great-great grandmother nourished her body with, and before her - back to the beginning of our origins.

Water has been the ultimate symbol of Rebirth. In various cultures bathing, submersion, or water ritual was connected with purification and entering new life. Perhaps this ritual is a connection to the life-giving amniotic waters, from which all organic human life is born - our mother's womb.

Let the next interaction you have with water, be one of graceful gratitude - to all the interconnection of all sentience before you (and after you), within you and without, through your embodiment of respect, love, and reverence. Water is life.

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Eleftheria Kakambouras is a Feminine Wisdom counselor, transformation coach, and facilitator trainer specializing in relational intelligence. Born in South Africa and now based in Slovenia, Her Hellenic name means freedom or liberty. Rooted in her studies in clinical psychology, metaphysics, and women's spirituality, Eleftheria's work centers on the liberation of the sacred feminine within each individual, drawing on myth and ancestral wisdom as transformative tools.

Over two decades, she has dedicated herself to fostering personal, professional, and spiritual development, particularly among women, through private counseling sessions, corporate sector engagements, feminine empowerment seminars, public talks, and retreats, she has amassed invaluable experience in guiding individuals and groups through the Heroine's Journey, facilitating conscious personal transformation.

Honored to be one of the AEIOU Leadership coaches, she supports women in business to reclaim their personal truth, purpose, and power.

Passionate about meditation, nature connection, and storytelling, Eleftheria empowers women to live, love, and lead from their feminine core, ultimately striving for a more compassionately connected world.

Additionally, she advocates for regenerative living in harmony with nature and serves as an ambassador for Europe in the Ecocivilisation movement, promoting a holistic vision of global alchemy and reconnecting with our divine nature in nature.

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WATER AS CARRIER OF ELEMENTAL LOVE

By Marko Pogačnik

Water in all its forms of existence represents the second body of the Earth called the hydrosphere. It is a fluid body in which the elemental consciousness of the Earth (Gaia) and nature is embodied. Examples of communication with the water body of Gaia follow. Water is finally recognized as the carrier of Gaia's love to all beings visible and invisible.

Keywords: hydrosphere, natural intelligence, elemental consciousness, being of Gaia, water as love

The purpose of this article is to bring awareness of some dimensions of water that can easily be overseen. To start with we should be aware that through water in all its forms of existence, visible or subtle (invisible), a second body of the Earth comes into existence called the "hydrosphere" – a sphere of water in constant movement. The Earth, embodied in a rather static form of a material sphere, is permeated by a fluid sphere composed of water in its different forms of existence. This second sphere of the Earth has a feminine character.

Next, we should become aware of those aspects of water when water seems to deny its constantly cycling nature. I have in mind the aspect of water frozen as snowflakes or ice. Then water appears as a crystalline structure. But do not think that the crystalline form of water depends only on low temperatures. At a specific level of existence that we want to consider now, water in all its forms is a fluid crystal even if it does not appear as such. This specific level of existence can be called "causal" because it is underlying the usual form of water as perceived by our organic senses. At the causal level, the manifested (visible) world is rooted in its archetypal background.

Water as a fluid crystal becomes the carrier of a specific form of intelligence called "elemental" or natural intelligence. More precisely one

should say that water is not only a carrier of the natural intelligence of the Earth inherited within its crystalline structure. Water itself is a form of intelligence that I equal with the Gaia consciousness.

At this point, I need to explain that the name “Gaia” is often used as an alternative to the usual name of our planet Earth. Gaia is the ancient Greek name for the Goddess Earth. Using the name Gaia for the Earth means recognizing that the Earth is a sacred place in the Universe and not just a material object with a thin layer of organic matter at its surface. It means at another level also that the Earth is a rounded-up sphere of consciousness in which all of us beings of the Earth take part, the being of water included. This primary (elemental) kind of consciousness has a collective character and is identical to what I call natural intelligence. When embodied upon Earth, human beings are also taking part in the elemental consciousness as does the being of water. To acknowledge water as being conscious in its way, I will from this point on write the name of water with the capital “w”.

It would be important to feel inwardly what it means when we say that Water is a form of consciousness because in human terms consciousness is usually associated with the rational way of thinking, which is exclusively connected to the human mentality. Imagine logical thoughts moving through the human head and feel how differently it is if Water as elemental consciousness – as a form of natural intelligence - moves through the living body of Gaia touching all areas of life, including the worlds of plants, animals, and human beings. Stay with your capacity to perceive inwardly and compare the quality of natural intelligence with what is called artificial intelligence (AI) feeling the difference. Artificial intelligence is based upon the dry principle of rationality while natural intelligence is embodied within the fluid life-giving principle of Water.

The elemental form of consciousness is called “elemental” because its expression does not use words or other logical structures to communicate. It is expressed mainly through its silent presence but also through feelings and inner images provoked within human beings who trust their imagination and are open to communication with beings of nature. To give an example I would like to present a piece of my

communication with the being of Water that I had in the summer of 2023 after the well-known floods in my country Slovenia. Many villages were destroyed, bridges taken away, people in despair…I was asked for commentary by a radio emission. Instead of offering my ideas concerning the catastrophe, I simply asked the being of Water what are the reasons for such upheaval that nowadays often happens in different parts of the world. I have received a set of images, feelings, and intuitions that already during the communication I tried to translate into logical sentences.

Here is the first answer to Water:
“I can not breathe if you human beings go around with your hearts closed towards the loving yet uncontrollable flow of life. What is the reason for your fear? Do you fall into fear while confronting life in its fullness capable of taking away what is redundant while opening the path towards the wonderful?”

This is the second answer to Water:
“As human beings, you probably sense that my memory is as vast as the knowledge of who you truly are. Beyond the vogue images about your identity that you have inherited from those who already before you have forgotten the essence of human existence, you are part of the countless beings of the Earth and the Universe. I feel the ultimate need to bring the forgotten to your memory.”

The third answer of Water says:
“You have forgotten that the element of Water is a sentient being distributed in countless vital channels and simultaneously present within each tiny water drop – in your inner space also. You have dropped any attempt to talk with me and to accept me as an equal co-creator of life. This is why I am forced to make an alarm through the catastrophes to reach you. I do it because I do not want you to be washed away in the coming Earth Changes that in the meanwhile touch all of us.”

Finally, I would like to give attention to the third, deepest layer of Water which shows almost divine quality. I refer to the traditional myths that appear in different parts of the world stating that our world is being carried

upon the back of a gigantic fish in the form of a disc. It moves in the primeval ocean of Water and is responsible for the basic equilibrium of our world. In my native Slovenian myth, this world carrying fish is of the feminine gender, called Faronika.

The well-known Slovenian folk ballad narrates about a fish named Faronika swimming in a deep sea. It continues:
“O wait, fish woman, fish woman Faronika!
We want to ask you what is happening in the world.”“If I flap my tail then the world will perish.
If I turn onto my back then the world will be flooded.”
“O don’t do it fish woman, fish woman Faronika.
Think of the little children, don’t do it,
and think of all women in childbirth.”

My interpretation is that the gigantic fish carrying the disc of the manifested world on its back represents Gaia, the soul or the divine essence of the Earth planet. It is not embodied in the material body of the planet - the so-called “lithosphere” - but in its fluid sphere, the hydrosphere. The expression “deep sea” should be understood as the fluid body of the Earth consisting of all different forms and dimensions of Water in constant movement. The fish that moves in this all-embracing sphere of Water represents Gaia, embodying the Earth matrix that can reach all the different beings and dimensions of what I call “the Earthly Universe” with the help of the omnipresence of Water.

Water enabling Gaia, the world soul, to reach all beings and worlds is one thing. The above ballade stresses another important aspect, the vulnerability of the Water-related fluid world. There is no stability related to the fluid world sphere to be secured in advance. If civilization existed in the moving world fish would cause extreme imbalances – which is the case with our anthropocentric world – and then we could be faced with the destruction of life on the Earth. In the words of the ballad, it is the case when the world fish “turns onto its back”. To secure the continuation of life upon the planet as we know it today we need to strive towards rebalancing our modern civilization.

Finally, our ballad in the last two lines makes us aware that Gaia, the world fish, is a compassionate being. It does not just represent the essence of the Earthly Universe but also takes loving care of its more vulnerable inhabitants, in our case children and pregnant women. This brings to our awareness that Water is the medium through which the love of Earth's creator is distributed throughout the planet and its beings. Water with its fine crystalline and fluid body is suitable to carry love impulses to all beings and also to all circumstances upon the planet no matter how difficult they appear to our eyes and minds. At their causal level, there is the sweet pressure of Gaia's love that will sooner or later transform their unpleasant or even horrible face to become re-attuned to the essence of the Earthly Universe which is a planet destined to embody love – love as beauty of the natural world and love as the base of human relationships.

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Marko Pogačnik (1944) lives in Šempas, Slovenia, UNESCO Artist for Peace. He works in the field of art combined with integral ecology (geomancy). He has developed a method of Earth healing called “lithopuncture” with stones standing on specific points with carved cosmograms. Last books in English: Christ Power and Earth Wisdom, Dancing with the Earth Changes, Creating Gaia Culture.
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PROMOTING GREEN VALUES IN LOCAL SPORTS ENVIRONMENTS

By Tina Jančigaj Ausec

Summary
The maintenance of high-quality sports facilities often requires extensive use of water. Climate change is contributing to water scarcity in some areas, increasing the need for innovative strategies to reduce water consumption and promote water reuse on sports fields. Although water scarcity and efficient water management in sports fields is a global issue, this article focuses on water use in sports facilities in our local environment.

We focused our studies on the specific climate and water conditions of the Karst region in the southwest of Slovenia, where we, as a young start-up company, are developing a digital platform for managing and organizing sports competitions. Our thoughts are consistently guided by the well-being of nature and people. The platform we are developing provides us with the opportunity to inspire the vast sports community to embrace and promote sustainable values. In this article, we also present some actionable solutions to promote water conservation and sustainable practices in sports.

Keyword
Sports facility maintenance, water conservation strategies, climate-adaptive sports fields, green sports practices, local community participation

Introduction
Water scarcity is a major problem worldwide, and the global sporting world faces particular difficulties in managing the amount of water used in sports fields. Maintaining sports fields usually requires a lot of water while climate change is making water scarcity an ever more complicated

issue. In sports, water is used for different purposes in different places. When we think of water use in sports, we most often think of football pitches and golf courses, where extensive watering is needed to maintain the turf. We also think of tennis courts that require regular watering to maintain the surface and swimming pools which require plenty of water. Ski resorts use large amounts of water to prepare high-quality ski slopes.

Water is used to maintain indoor sports facilities such as athletic tracks and arenas as well, as for showering after sports activities and for flushing toilets. And let us not forget the packaging of food, drinks, and refreshments served during sporting events.

Approach

Maintenance and management of natural sports surfaces today faces many challenges, including increased water consumption. Key issues include maintaining sustainability, balancing intensive use, adapting to weather changes and financial constraints, managing pest and disease pressures, and promoting education and awareness. These challenges require holistic and sustainable approaches to maintain the quality and safety of sports fields.

We decided to illustrate water use on sports fields and examples of water management in our local environment, an area characterized by hot and sometimes extremely dry summers. Our company is located in the Slovenian Karst where water has a very special value. The local climate is also influenced by the winds, especially the strong bora, which in the past led the inhabitants to build stone walls around cultivated fields to prevent soil erosion. The Karst soil, characterized by its distinctive reddish color and unique limestone composition, is exceptionally permeable.

While most of Slovenia was severely affected by floods in 2023, our region experienced prolonged droughts and therefore a high risk of fires. These fires posed a threat to nature and settlements, especially in 2022.

The Karst is a landscape where most of the water accumulates underground, in the Karst caves. This is also reflected in the local legend

(Peršolja, 2019)[1] about the mythological creature Šembilja, who once fled from the devil through the Vremska valley, blasting a new path into the underground on her way. Through this corridor, all the water flowed into the largest underground canyon of the Škocjan Caves, which have been on the UNESCO World Heritage List since 1986.

Archive: Škocjan Caves Park, Author: Borut Lozej

Not far from Škocjan is the Lipica stud farm, the birthplace of the noble white horse and one of the most beautiful cultural and historical monuments in Slovenia. Today, it is a charming tourist and sports destination, hosting equestrian competitions in dressage, show jumping and carriage driving.

Archive: Lipica Stud Farm, hippodrome, Author: Mitja Božič

1. Peršolja, J. M. (2019). Zakaj je Kras brez vode. Kraškokriške pravce, RD Gmajnca.

According to Kraški vodovod Sežana d.o.o.[2], which is responsible for the collection, purification and distribution of water in the Karst region and surrounding areas, the Lipica hippodrome and its associated facilities with an area of 5,600 m2 consumed 16,000 m3 of water in the period from 2016 to 2023, an average of 357 l/m2 of water per year.

The property also includes the Lipica Golf Course, which is the only golf course in Slovenia that operates throughout the year due to high temperatures and the fewest number of rainy days. The golf course covers an area of 85,000 m2 and is equipped with approximately 170 irrigation nozzles. From 2016 to 2023, an annual consumption of approximately 250,000 m3 or 360 l/m2 has been recorded for irrigation and maintenance purposes.

Archive: Lipica Golf Course, Author: Valter Leban

A tennis court situated in the vicinity of Lipica has six courts and a total area of 4,000 m2. It is in operation only during the summer season, from April to October, and during the same period it has used approximately 22,400 m3 of water for irrigation, which is equivalent to 700 l/m2 per year. The data shows that the highest water consumption occurs in summer, particularly in the month of July.

The football field near Lipica in Sežana, with a total area of 12,160 m2, including the main field and the auxiliary field, has consumed a further 54,600 m3 of water between 2016 and 2023, for an average of 561 l/m2

2. Kraški vodovod Sežana d.o.o., (January 2024), Water consumption of the sport fields in Lipica and its surroundings from 2016 to 2023

Water consumption in the Lipica sports field and its surroundings from 2016 to 2023, (January 2024), Kraški vodovod Sežana d.o.o.

Sports Facility	Area (m2)	Total Water Consumption (2016-2023) (m3)	Average Annual Consumption (l/m2)
Lipica Hippodrome	5,600	16,000	357
Lipica Golf Course	85,000	250,000	367
Škibini Tennis Court	4,000	22,400	700
Football Field Sežana	12,160	54,600	561

per year.

Discussion

It is generally believed that the largest water consumers are golf courses in countries with warm and dry climates, such as Spain in the EU, California and Dallas in the USA, United Arab Emirates, Saudi Arabia and Australia. These facilities often supplement golf courses with cricket and football fields which further contribute to a higher overall water consumption.

It's also important to remember that these are attractive destinations with huge amounts of capital invested in tourism and sports infrastructure, hosting both domestic and international tourists. At the same time, they receive funding for significant investments in technologies that help reduce or reuse wastewater.

In our local case study we can see that it's the management of the tennis court that currently consumes the most water for irrigation and maintenance. It's important to emphasize that this is only informative statistical data since we do not have all the other potential facts that could influence the reported water consumption quantities. For example, we do not know whether the data includes only surface irrigation or also water used for other purposes such as showers, toilet flushing, cleaning, drinking (including humans and horses), food and beverage preparation, etc. Consumption also depends on the number of club members, occupancy, total hours of play, and frequency of competitions.

Consideration of local climatic conditions such as wind, soil permeability and and restrictions on the use of fertilizers and pesticides is critical for the maintenance of a golf course. It is important to consider that wind can carry away water particles after irrigation, reducing the effectiveness of irrigation and maintenance of greens.

The exceptional permeability of the soil requires frequent irrigation as water is quickly absorbed. It is important to focus irrigation efforts on the green areas that are used primarily for play, as seen in the image below, rather than on peripheral areas that are used for aesthetic purposes only. This approach allows for a more targeted and efficient use of water.

Irrigated Golf course surfaces, Lipica (2024), Author: Kraški vodovod Sežana d.o.o.

In addition, restrictions on the use of fertilizers and pesticides are important for preserving the Karst ecosystem on the golf course and protecting the environment. The caretakers of the golf course in Lipica strive for environmentally friendly management, using minimal amounts of chemicals to contribute to sustainable maintenance.

Borut Hočevar from Kraški vodovod Sežana d.o.o. explained that the loss of water from the source to the consumer due to aging and poorly maintained water networks highlights the importance of upgrading infrastructure. This can include improvements to the distribution network, contributing to more efficient use of water and reducing losses on the way to the end user[3].

3. Hočevar, B. (January 2024). Kraški vodovod Sežana d.o.o.

There are some smart irrigation solutions for sports fields in use around the world that apply soil moisture sensors. These technologies automatically adjust the amount of water based on plant needs and current environmental conditions.

While this is not possible in our Karst region, the proximity of rivers and larger water flows can be used to irrigate sports surfaces elsewhere in Slovenia. Due to our location in a relatively dry area, municipalities have occasionally had to restrict or prohibit the use of water for irrigation of sports fields in the past.

The Lipica Stud Farm also houses the Hotel Maestoso where a renovation of the pool and wellness area is currently planned. This is certainly an opportunity to consider the implementation of innovative, environmentally friendly technologies for the reuse of pool and shower water.

Generally Slovenia does not have problems with water. For watering, maintenance, showering and drinking we mostly use water directly from the tap. It is an extraordinary gift and a rarity in the world that we sometimes do not realize.

Nevertheless, as we firmly believe that there is a strong desire and interest among the managers of sports courses in the Karst region for more efficient and environmentally friendly maintenance of green areas, we have researched the topic and have been inspired by some interesting solutions for reducing water consumption seen abroad.

a) Water-efficient irrigation: Manchester City's Etihad Stadium in the UK uses advanced technology and soil moisture sensors to optimize irrigation and reduce water waste[4].
b) Drought-resistant turf: Wimbledon's All England Lawn Tennis

4. Xylem. (October 2023). Xylem and Manchester City team up to drive water sustainability in football. https://www.xylem.com/en-uk/making-waves/commercial-buildings/xylem-and-manchester-city-team-up-to-drive-water-sustainability-in-football/

Club switched to perennial, low-water-use ryegrass varieties, reducing water consumption and increasing the resilience of the courts[5].

c) Rainwater harvesting: Atlanta's Mercedes-Benz Stadium collects rainwater on its 680,000-square-foot roof, providing an alternative source for landscape irrigation[6].

d) Soil management: Amsterdam's Johan Cruyff Arena improves soil structure through aeration and organic matter, reducing the need for frequent irrigation[7].

There are also many examples of water recycling.

a) The gray water recycling process at the Emirates Stadium in London demonstrates practical water reuse in a major sports venue by treating and using stadium waste water for pitch irrigation[8].

b) The Friends Arena in Stockholm uses sustainable stormwater management with rain gardens and permeable pavement to capture and treat stormwater for pitch irrigation, minimizing its environmental impact[9].

c) An excellent example of local cooperation in the Netherlands between a football club and a local company involves the

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5. Newcomb, T. (July 2019). Wimbledon: Caring For The World's Most Famous Lawn, Forbes.com

6. Waterless. (January 2020). New stadium is a trailblazer when it comes to water., https://www.waterless.com/blog/new-stadium-is-a-trailblazer-when-it-comes-to-water

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8. Football Club Arsenal (Octobre 2016), Arsenal.com, https://www.arsenal.com/emirates-stadium/environment-regeneration

9. Storm water management and flood protection (2024), AFRY.com, https://afry.com/en/sustainability

installation of wastewater tanks. The collected wastewater from showers is used to flush heavily used toilets, especially during soccer matches. This is particularly important as the stadium receives up to 3,000 visitors per week[10].

"Green Challange" in the Karst Region, Slovenia (EU)

With a population of just under 2 million, Slovenia has a strong sporting tradition that encourages all generations to participate in sport. Slovenian athletes, with the support of their team members, achieve high results on the global stage. They are the ones who bring us together, inspire and motivate us to promote positive values. We believe that their recognition and positive influence make them exceptional ambassadors for sustainable values.

That is why our company has decided to use the innovative Challanger digital platform to support more than just the technical organization and management of competitions for clubs and sports federations. We want to leverage the platform globally with our clients and partners, such as the media and sponsors, to raise awareness of sustainable values and promote environmental protection and social responsibility.

As a long-time organizer of sports events, we know that the preparation and execution of sports events can increase water consumption and waste.

As a Challanger team, we think about how we can help protect the environment, promote sustainable values and foster connections not only within the sports community, but throughout the entire local community. In line with our motto, "Create a sustainable world, be part of the solution," we are taking small, gradual, but consistent steps towards a better society.

In February 2023 we organized a conference on digitalization, sustain-

10. Greening the Sports with Hydraloop Use Water Twice, (December 2021) Hydraloop, https://www.youtube.com/watch?v=q88Ufp2_D3A

able development and social responsibility in sports[11].We engaged with esteemed guests, experts, entrepreneurs, and members of the local sports community to discuss topics such as water usage in sports competitions.

We unveiled our "Green Challange" initiative, setting several sustainability goals related to the organization of local sports events. Since then, we have strived to meet our Green Challange commitments.

a) By promoting sustainable mobility, we encourage competitors from the local community and others to coordinate shared transportation when traveling to sporting events.
b) At Challange events, food, drinks and refreshments are served in sustainable packaging, including glass cups and water bottles, ceramic plates and cutlery. This helps us to avoid and reduce a significant amount of plastic waste. Food is prepared using mainly local ingredients.
c) Because of its exceptional quality, water can be consumed directly from the tap. We also encourage drinking water from a glass. The cost of washing dishes is still significantly lower than the cost of producing and recycling plastic bottles. According to the Slovenian Consumers Association, up to 17 liters of water can be used in the production of a single plastic bottle[12]. For sports events, we gave all participants a glass bottle and encouraged them to hydrate with water and herbal drinks.
d) When designing merchandise and rewards for competitors, we work primarily with local suppliers and use recycled materials. In tennis, we have also tested tennis balls made from more sustain-

11. Challanger.net. (February, 2023). Digitalization in sports connects and create new synergies., https://www.challanger.net/post/digitization-in-sports-connects-and-creates-new-synergies
12. Peterman, M. (Feb, 2023). Okoljski odtis plastenk z vodo. Zveza potrošnikov Slovenije. https://www.zps.si/nasveti-in-vodniki/okoljski-odtis-plastenk-z-vodo-2023-02-03

able and environmentally friendly materials. We recognize that by networking, supporting and promoting each other we can do so much more for the local community.

Water service, Challanger tennis tournament (June, 2023), Author: Tjaša Brajdih

e) We work with local primary schools through art exhibitions. It's important to raise awareness of sustainability among children and young people, who can create great ideas with their unlimited and original thinking. We collect reusable tennis balls and donate them to local schools for educational purposes such as math, art or sports.

f) We explore opportunities to reduce and reuse water on sports fields with owners and managers of sports fields and in cooperation with the local community. Many solutions to reduce or reuse water could also be implemented on local sports fields.

g) We raise awareness of green values and share best practices and experiences with thousands of platform users.

Conclusion

Consumption of water in sports can harm the environment by reducing natural resources, affecting ecosystems and increasing energy consumption. It can also affect water quality and contribute to the challenges of climate change. Despite the fact that certain countries, including ours, currently have sufficient amounts of water, we should

adopt sustainable practices such as efficient water management and recycling to mitigate these negative impacts.

Effectiveness may vary depending on the specific climatic conditions of each region, the type of sports facility, and the cooperation between stakeholders involved in water management. It's important to start looking for solutions within ourselves as individuals, teams, companies or communities.

In pursuing and realizing sustainable values and environmental protection, it's crucial to find synergies and connections with the local and sports community. Our common concern and focus should be how to protect the fascinating natural heritage of the Karst for the well-being of future generations. In practice, small green initiatives driven by positive local examples, a sincere desire for change, ongoing educational programs and knowledge sharing can be the most successful and leading combination in organizing environmentally friendly sports events.

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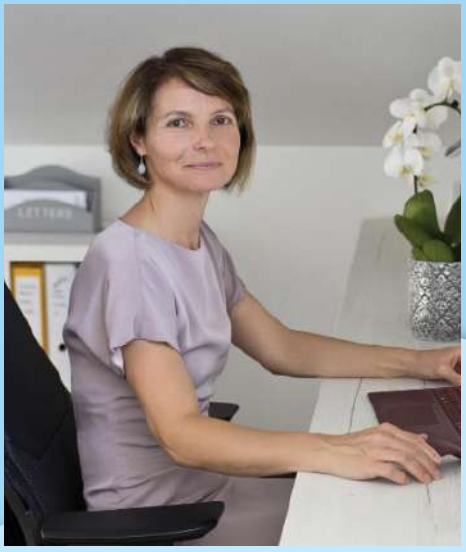
ABOUT THE AUTHOR



Tina Jančigaj Ausec, a Bachelor of Economics, owner and CEO of Befine-Pro, Slovenia (EU) with 24 years of extensive retail banking experience. A start-up mentor, supporting young entrepreneurs and students, sharing her knowledge in deeper understanding of financial data and acquiring financial resources.

She enjoys developing the Challanger platform for managing sports competitions, working with a dedicated team of sports enthusiasts. Her goal is not only to empower and support organizers in improving the management of sports events. Above all, they are sincerely committed to reducing negative environmental impacts and integrating best practices for the benefit of eco-friendly sporting events.

CAN INDIA BE THE VISHWA [WORLD] GURU OF SUSTAINABILITY?

By Dr. Chandra Shekar Hariharan

Some years ago, Mark Tully, the BBC radio legend who made India home for his love of the culture, shared something insightful: India can play the role of vishwa guru in tackling the problem of climate change for the rest of the world. As many of the sections of this book have reaffirmed, Climate change is a crisis which requires much more fundamental change than technology can provide: we need changes in the way we live our lives.

There is no part of the world which has a continuum of 3000 years and more, of chants and religious rites that continue to resonate from temples and places of worship. Like muslims offer prayers [namaaz] five times a day, the orthodox believer among Hindus offers what is called Sandhyavandanam. It is an ablution performed by Brahmins and 'twice-born men' at the three divisions of the day – or the period between night and day, as the sun wanes at noon, and at the twilight hour. Many of the chants offered during this prayer essentially pay obeisance to water. Our grandmothers have chided us on how 'paap' [sin] will befall us if we toss freshwater down the drain. In other ancient ecosystems of the Mayas and Incas in South America, or the complex cultures of Africa's rich tapestry of tribal rituals, there resonate such deep respect for natural resources.

Water has never been a commodity in the teeming subcontinent. India has over 30,000 rivers with names that revolve around legends of many of the gods, goddesses and legendary rishis [sages] and spiritual leaders drawn from a bewildering variety of mythologies. There are male [most of them destructive] rivers and then there are female rivers [standing for fertility and growth]. And yet if you care to do even a cursory search of the web for pictures of some of the rivers that flow through India's top 500 cities [of the 7900 towns the country hosts] you will see squalid sewers

winding lazily through these towns, with administrators paying no attention at all to them. Yet every Hindu will affirm that rivers are sacred. The Kumbh Melas [kumbh is the holy urn that carries the nectar—or Amrit—of life and sustenance by accounts from the Puranas, while mela is a fair] is a spectacle you cannot see anywhere else in the world for the millions they draw. These occur by a configuration of the stars every 12 years in Prayagraj [across the Jamuna and Ganga], Haridwar[on the Ganga], Triambak-Nashik [the Godavari] and Ujjain [the Shipra river]. Over 20 million were reported to have visited the last Prayagraj Kumbh mela. These are not advertised. There is no one inviting these silent masses from the 600,000 villages of India to make it to the mela. They come on their own, at their cost, with no 'sponsors', with stacks of bajra rotis [a leavened bread made of pearl millet] wrapped in soft cloth. You will see them, the entire family, by the banks of the river, squatting on their haunches, quietly eating a meal with salted green chillies or mango or lime pickle to accompany. Their ritual dip in the holy waters at the anointed hour of the sun and stars, and the hours they spend watching the eternal waters flow as they listen to religious discourses or watch gatherings of monks in their timeless garb is a phenomenon that is hard to explain. They return to their villages as silently as they came, walking many hundreds of miles, or taking the train or bus over a couple of days if they come from far longer distances.

The way we live our lives, is epitomised by at least 700 million, or half of India's burgeoning population. And yet India has the challenge of being the worst hit by the water crisis in the world. China has a population nearly the same as India's, as does the Continent of Africa. With about 1.4 billion in each of these three landmasses, India faces the worst on water availability, for she has a mere one-tenth of Africa's 30 m sq km, while China has nearly 9 million sq km to India's 3.3 m. sq km.

There are other oddities that mark India's travails with water. With over 850 million people dependent on agriculture for their livelihood, it is still largely an agrarian economy, although the farm economy contributes under 20% to India's GDP which is the fifth largest in the world, only after the US, China, Germany and Japan. Nearly 80% of the annual renewable water is claimed by about 1.5 million sq km of India's lands that are under

cultivation. Urban water demand represents under 8% in a country with over 7000 towns, while industrial water demand accounts for about 12%.

So where does India start when it comes to addressing the water crisis? Like in China and increasingly so in Africa, groundwater extraction has become the norm over the last forty plus years. Seventy per cent of the subcontinent's water demand is met by those dreadful borewells, which have depleted the groundwater table, weakened resilience that soils can provide, increased the consumption of energy sharply, and raised the threat of land subsidence across many districts. In rural or urban India, there is little as demand-side water conservation or reuse measures. Whether it is rainwater harvesting, or use of treated water, or practise of simple conservation measures that featured in inspiring ways in India's past of a rich architecture of water, it is as though India's schooled [not 'educated'] middle class have been cut off from the wisdom of their forefathers.

Riverfed irrigation with the big dams that sprung across India's large rivers in the 1950s were called 'Temples of modern India' by Jawaharlal Nehru in that decade of hope for the nation. Governments continued to build them until 2010 despite protests in later decades. Today dams and canals account for no more than 15-18% of irrigation for farmlands across India. The staggering mass of 80% of agricultural lands – nearly a third of India's landmass – is dependent vulnerable on the monsoons.

For over 25 years, ecologists and agri experts and just about anyone outside of the government have known and understood that the only way ahead for India's farmers is with the building of rain-fed irrigation systems. Even as I write this at the cusp of the monsoon in late May 2024, the Indian Met. Office assures us that those ceaseless, eternal winds are in place and the year will see 'beyond-the-normal' rainfall at 110% of the annual potential.

So what's the total quantum of water India gets through the year? Where does one start if you need to address this challenge of water in India's 8000 towns/cities and 760+ districts? India's urban water demand is put at 36-40 billion litres a day – and at the annualised quantum, this is about

8% of the country's annual renewable rainfall. While it is seemingly, and assuringly, small, a city like Bangalore that hosts 13 million people has 2.6 billion litres of water needed every day with nearly 60% of it coming from groundwater extraction. The groundwater levels are at over 1500 ft, or a half-kilometre deep. The cost of energy for feeding India's cities accounts for nearly 45% of India's energy bill annually—and India cannot stop the use of coal-based power until 2040, and so the exploitation of forests will continue. The situation is no different in the first 70 cities that each host a million people. India has nearly 8000 towns/cities /agglomerations on no more than a minuscule 0.2 million sq km of the country's landmass.

The lack of governance when it comes to industrial waste water is appalling, with many rivers polluted beyond every permissible limit, with no concerted effort visibly seen although activist organisations are making the right noises, and institutions like the National Green Tribunal are doing what they can to bring sanity to the process.

India has over 30 million such MSME units with many of them water-intense in their manufacturing process. They need to be adopting local solutions, for dealing with waste water where it is produced, or creating sources of freshwater at the point of use is the best way to mitigate the challenge. Centralised solutions of the kind the western world has seen—and that India has aped over the last 50 years—have failed miserably, and yet administrators in cities and in other arms of the government continue to be oblivious to this.

Like in nearly every other country, barring exceptions like the UK's handful of water utilities, India suffers from a complete lack of attention to demand-side management of water. Many water experts have been urging state governments in the federal form of governance that India has, to rename water 'Supply Boards' as Water 'Management' Boards for they supply less than half every city's need. The writing on the wall has been clear for over a decade, but little attention has been paid. No private action or initiatives can bring the sort of impact that deterrent govt regulations can. Yet, where there are good regulations in place, the govt simply doesn't know how to identify defaulters. Says a water utility official in Bangalore at a recent meeting, "Over 40,000 homes were happy to pay

penalties of over Rs 2 crore [a quarter million dollars] every month but did not want to consider installing water solutions that offered them payback within 2 years at current cost of purchase!"

"Used water is the new oil of the future," says Mary Conley Eggert, Co-founder of the Illinois-based GlobalWaterWorks and the curator of a WOW Global series [standing for World of Water] that the India-based AltTech Foundation hosts every Thursday. "There is an amazing number of water experts, watershed professionals, champions at wastewater treatment or rainwater harvesting systems in India. Yet outreach, awareness among urban water-users, and the lack of big players in the water sector who have brand muscle and the bandwidth for execution of large water projects is part of the challenge India faces."

The water industry, within the small segment of urban water use, has notched an impressive 25% CAGR over the last decade and is set to grow at the same pace the next decade as the water deficit across cities and the countryside balloons.

In the name of 'technology' startups, much has been touted as products or services which seek more the valuation that some perceived market potential can offer, and less as relevance to needs on ground of users in cities or in farms.

Groundwater levels across more than 70% of India's habitable lands have plunged from 10-50 ft in the last 50–60 years to 1200-1500 feet and over. From clean ponds and open wells that served as a water source at homes, we have been reduced to securing intermittent supply from water utilities [3 days a week for a few hours, if you're lucky]. The crippling dependence on deep borewells—owned by homes or exploited by water tankers—have become, in every city, the single largest supplier of water for residential, commercial and the industrial sector. Says Jay Parekh, "In Goregaon to the north of Bombay, we have tankers that supply water at Rs 200 [USD 3] to a kilolitre, or about 5 times what the water utility's supply price is. We have no choice but to buy such water. We are never sure of the quality of water." And every home relies on miniature RO plants that cost upward of Rs 16000-24000 [USD 200-300].

Five star hotels rely entirely on water from deep borewells. Says a senior management executive at one of India's luxury hotel chains, "I am ashamed to admit that among the hotels I manage is a premier hotel selling at 700-900 US dollars a night. We are terribly water-stressed. It is hard for me to accept that some of the hotels in the chain I lead have their own water tankers driving out every day to secure water from some borewell at distances that make the cost more forbidding," says one hotelier professional.

So can India be the vishwaguru of sustainability? Fact remains that in comparison to the dire scenario of groundwater in China, or the looming threat in Africa's cities, India has managed the water situation much better. And what is redeeming is that over 750 million Indians use no more than 20 litres to an entire family, while the middle-class urban Indian uses over 600-800 litres to a home.

So what makes India's cities cope with water, without having to make world headlines as Cape Town does with even officials admitting defeat in every global media forum? News from this southern tip of Africa pops up regularly. One wonders how such a thing can happen. Does Cape Town have a challenge so unique that they can push the panic button every so often, and the world will listen?

Let's look at the magnitude of the water crisis in Cape Town before we understand the resilience India's cities bring. Cape Town gets 600 mm rainfall [which is more than you can say of all towns in Rajasthan and most of Gujarat and eastern Maharashtra]. Jaipur gets 10% less than Cape Town at 530-550 mm annual rainfall. Cape Town hosts 3.5 million people, and Jaipur happily manages 4.5 million people [and 3 million tourists a year in the winter months alone]. Cape Town has 600 sq km while Jaipur with a million more people has barely 450 sq km. Yet you will never see Jaipur in the news for water shortage.

It is this resilience that is the hallmark of nearly every city in India. The broad swathe of the lower middle-class and the poor in urban India manage with less than 30 LPCD or water access to a person. This is not to do with cost or access to water, as much as the deeper underpinning

of enduring habits gained from mothers and grandmothers. Every child knows how to harvest the precious little rainwater that most of Rajasthan and western Gujarat gets. People are aware of the importance of water. A bath is done most often with 5-10 litres of water or a quarter or half-bucket which is beyond the comprehension of most Americans or Europeans.

India is home to over 200,000 lakes, many of them over a thousand years old. Many cities continue to be fed by large reservoirs that store water in the rain-months to feed millions in summer. Over 2000 years, with rainfall limited to under 70 hours in a year's 8760 hours, kings and rulers of the deep distant past built storage systems and tanks that continue to be a marvel for the foresight and the planning acumen those planners displayed. The new water policy of the government of India pronounced in 2023 its intent to create 60 lakes to every district in the country, and that would mean an additional 60,000 lakes created over the latter half of the 2020s.

Unlike ponds, lakes, and streams—which are viewed as a community resource—groundwater is usually seen as an individual's property. As people install more deep borewells, they think they can extract as much groundwater as they want. The idea of groundwater as a common resource that is meant to be shared responsibly is one that people aren't yet familiar with. In France and in most parts of the Francophone world, groundwater has long been regarded as Res Nullius, i.e. it has no master and is subject to private appropriation by those who own the land that overlies the resource. This principle was enshrined in law as of 1804 (articles 552 and 641 of the civil code) and remains unchanged to this day.

Community action in India's villages, and sometimes even in cities offer hope. There is the dawning of the reality that city water utilities or government projects to bring water for farmlands are a thing of the past. That reliance on solutions that emphasise the demand-side, while supply-side component is bridged with wastewater reuse and rainwater harvest, is a big idea taking hold among water-users.

In villages in Barmer and Bikaner districts of Rajasthan [which grow 80% of India's cumin produce], community members are coming together in groups of 30 and 50 to sensitise villagers to the importance of using groundwater in a planned and inclusive manner, while also building the connection between groundwater usage and cropping patterns.

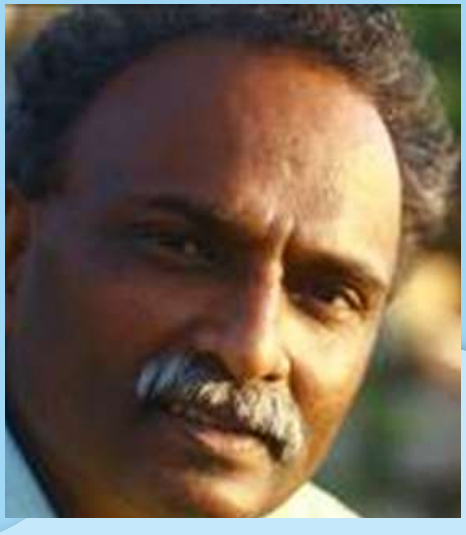
The choice in many micro-regions that are rain-fed is made in more informed ways when it comes to low- and high-water-intensive crops they need to choose from, and grow. Using groundwater in a way that each one gets enough water to grow the crops of their choice, make profits, and save water for the coming year is part of such community planning. In a village in north Karnataka's Raichur district, the village women and young formed a collective to assess the demand and supply of groundwater available and prepared a water budget. Mark Tully, in a book written in the early 1990s [No Full Stops in India] wrote of the success story of a panchayat, Raj Samadhiyala, west of Rajkot on the highway to Jamnagar. A 20-litre bucket of water is all that was offered to every family. This was governed with community meetings that got the village to be water-neutral with cultivation water needs of the village met with a combination of inputs ranging from change in the crop pattern to water-efficient crops, local seeds, no synthetic fertilisers and pesticides and so on.

Says an NGO official working in Mayurbhanj district of South Odisha which has been long ridden by drought, "Farmers discuss their crop choices with each other. They factor in the unpredictability of rainfall, and determine the recharge of groundwater available for the season. This is a unique space for the community to deliberate upon local, water-related issues, irrigation strategies, and crop choices." The lady adds, "To start a dialogue around water conservation in the community was our first intent. People are now discussing which irrigation method is effective for saving water, and if they should switch to growing a mix of low-water-intensive crops (such as barley and gram) and cash crops, instead of growing only water-intensive crops."

Says a Chennai-based filmmaker, Niki N Kalpa, who has over 800 short documentaries on community action on waste water, “Such collective thinking is needed in our offices and apartment complexes. They can bring a world of difference to the way people think through the water crisis. There is no better way of doing this, and etching in their minds the process of thinking on water than working together, understanding the range of simple, low-cost and highly rewarding water solutions that can be installed with a bit of help and support.”

It may not be impertinent to close this with the sad story of Bengaluru’s Karaga festival which signifies a deep respect for water. Water is worshipped for eleven days, though water bodies of yore have gone missing. Says a custodian of the city’s oldest festivals, “Karaga, at the soul of it, is a water festival where we do the Gange Puje for eleven days. We worship Adi Shakti, the protector of life which is what water does in reality. Of the eleven days of festivities, the Gange Puje where we worship water bodies around the city draws at its peak over a 100,000 devotees.” And he laments, “We have had to change the original spots of worship because the water bodies have been lost. The Kalyani [a holy pond] is so polluted, that we order tankers, fill drums and take the symbolic bath. We had built a small tank near the kalyani which could be used for the bath, but even that is polluted. This is the case with most of the other Kalyanis and ponds we used for pujas [worship].” He stares into the distance, “There is a reason cities and civilisations flourished around rivers and water, because it gave us life. Is this how we protect it?”

ABOUT THE AUTHOR



Dr. Chandra Shekar Hariharan, Green builder with over 2.5 m Sft of Zero Energy Developed (ZED) homes, mentor for green entrepreneurship, enabler of industry directions on sustainability and resilience at both In-building and In-city scale. He is founder trustee at Prem Jain Memorial Trust and AltTech Foundation. A Senior Fellow at CII IGBC, he's also an advisory member at ISHRAE and IPA on the longer term decarbonisation strategies achieve Net Zero for industry ahead of India's avowed target of 2070.

He has over 60 awards including the San Diego Green, the distinguished Ryutaro Hashimoto sustainability award from Kanagawa, the Green Apple of the UK, the ADB Asia Water Champion, Lifetime Achievement Awards from Realty Plus and Builders Association of India. From the early 1990s, he has mainstreamed sustainability with housing, green products and green solutions.

Over the last five years, he has been driving Multi city public campaigns for

1. Water solutions (WOW Action Forum),
2. on creating 2000 green managers (at Foundation Green), and
3. Driving a water literacy program called RainReach for 40,000 school kids in Bangalore.
4. Regional missions across India for green education for graduate engineers, architects and other young Indians seeking to take the green path at PJMT.

Accelerating adoption of green solutions for Net Zero Water and Energy solutions is at the heart of all initiatives he's associated with.

PRA-OM

By Deirdra McMenamin

Please,
Everyday,
Make a moment to,
Bless the water in you,
And the water in me,
The waters in the rivers,
The waters in the trees,

Bless the water in the seas,
Bless the water in the birds,
Bless the waters in the bees,
And everything in between.

Thank the waters in our eyes
Always ready to laugh or cry
Hope our tears of joy
Fly out around the universe
Bringing us home, to ourselves,

Thank you, Thank you, Thank you
Feel the gratitude every day,
As we play
and let peace prevail.

Deirdra McMenamin Artist™ © Deirdra@duck.com

ABOUT THE AUTHOR

Deirdra McMenamin is an Artist, Activist, Guardian, Writer, Co Creator, Campaigner, Poet, Public Speaker, Parent, Facilitator, Friend.

She holds degrees from Loughborough, Cardiff and Whitecliffe. Has exhibited around the world and is a certified Equine therapist and perma-culturist.

WATER MANAGEMENT

Photo Credit -Deirdra McMenamin Artist™ © Deirdra@duck.com

WATER MANAGEMENT

By Mr. Joseph Idigo

Abstract
Water management is an important tool for making water available to the population. This submission reports the use of the Integrated Water Resources Management in his participation in a water and sanitation project in Africa. It is a management that provides all necessary benefits arising from good use of water and its availability.
Keywords: water reform, water policy, water law, economic benefits

1.0 Introduction

Water management refers to the **planning, developing, budgeting, regulating,** and **distributing** of water resources. Effective, sustainable water management maximises the beneficial uses of water, while minimising damage to people, property, and the environment[1]. Being a matter of management, the keywords highlighted here call for the application of water governance. So, what is 'water governance'?

2.0 Water governance

According to European Water Regulators[2], Water governance refers to **the overall framework and processes for decision-making and implementation of policies related to the use and management of water resources**. One of the best-known statements on water management, in the area of water governance, is that introduced by the Global Water Partnership, when it was described as the integrated water resources management (IWRM), to wit: "a process which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital

1. Gupta, H. The Importance of Water Management in Agriculture and Our Future. ClimateAi, January 10, 2023. https://climate.ai/blog/water-management/
2. WAREG, European Water Regulators, 2 August, 2023 www.wareg.org/articles/4-what-is-water-governance/

ecosystems.[3]" Even though the IWRM system strikes some accord with the fragmented traditional system, regarding management of water demand and its supply, the former further spotlights two categories, comprising a natural system that identifies resource availability and its quality, as well as another category, the human system, which emphasises resource use, waste production and resource pollution. These two categories have integration intercalating them[4]. The IWRM system provided the background that informed the work this writer did in Africa and Asia. In brief, this work will be divided into: policy, institutional reform and water law.

2.1 Policy

Water supply has been of chaotic dimension in Nigeria as a whole. And, so, the 36 states of the country have been battling to reverse this trend that still grows with time. For example, many millions in the urban and rural areas suffer this scourge. And this has been exacerbated by flooding, poor management, as well as scarcity[5]. In one of our interventions on this situation between 2015 and 2018[6], We prepared water policies with an aim to addressing problems of water resources, and paying particular attention to water supply, with an adjunct of sanitation. These policies assigned responsibilities among stakeholders, while creating avenues for harmonious integration of these responsibilities. Thus, these policies provided the bases and support for an eventual production of the other two important items in the salutary bundle of solutions already mentioned above.

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3. Technical Advisory Committee (TAC). Integrated Water Resources Management. Global Water Partnership, TAC Background Papers No.4. https://www.gwp.org/globalassets/global/toolbox/publications/background-papers/04-integrated-water-resources-management-2000-english.pdf

4. Ibid, page 23.

5. Ihezie, E. and Obaniyi, F. The importance of clean water and sanitation in Nigeria. Southern Voice, September 11, 2023. https://southernvoice.org/the-importance-of-clean-water-and-sanitation-in-nigeria/

6. Technical Assistance program carried out by Human Dynamics of Austria as contractor, working for the European Union. http://www.humandynamics.org/en/

2.2 Institutional And Sectoral Reform

Arising from the ideas expressed in the water policies, this next step of reform provided the following objectives, to wit:
Restructuring the water and sanitation institutions in the target states;
Inclusion of some other institutions to fill the important gaps present in the list of relevant institutions;
To create the necessary background for a subsequent water law that will define the roles and responsibilities of the water, sanitation, wastewater institutions in these target states;
To provide the background for involving all relevant and important stakeholders in the ownership and management of the projects in their respective areas;
To provide the background for capacity building of the stakeholders in the areas of water resource knowledge and conservation, social understanding and economic empowerment; and
To establish an interdependent institutional architecture of water governance and water management[7].

The raison d'être for the above measures was the envisioning of:
An improved water and sanitation sector that will be ready to take up the challenges expected in the Sustainable Development Goals (SDGs), as they relate to: SDGs: 3, 5, 6, 8, 10, 12, and 17;

Improving water and sanitation that will be available to all citizens of the target areas of this project;

Equitable allocation of water resources, enthronement of water conservation, improved ecosystem integrity and an increase in the growth of water-related economic pursuits;

An enthronement of gender mainstreaming in affairs related to water and sanitation in the project areas; and

An enthronement of democratic processes and all-inclusiveness in the

7. See, Supra, Note No. 6.

An enthronement of peace and justice in the project areas[8].

Following this was the provision of the adequate water laws for the project areas.

2.3 Water And Sanitation Bill

This bill was for the eventual production of a law on water and sanitation. It comprises some of these important parts:
Fundamental principles and entitlement to use of water;
Establishment, composition and functions of water and sanitation institutions;
Catchment management committee (CMC) and state water resources and sanitation regulatory commission;
Registration, licensing and tariff setting for water uses;
Water resources efficiency and economic benefits of water and sanitation;
Gender and social equity in water and sanitation services;
Social dimension in water and sanitation services;
Water services fund;
Sustainable use of water resources;
Involvement of the private sector;
Monitoring and evaluation (M&E);
Enforcement and general provisions;
General regulatory provisions for water and sanitation institutions; and
Schedules[9].

One mistake in the area of water use has been the application of the traditional linear model of water use, whereby water is used and released into the environment. This does not help the trend in the modern world, as far as population increase and increased tax on water use are concerned. Thus, the sustainable way to tackle this situation is the application of a circular water economy.

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8. Ibid.
9. Ibid.

3.0 Circular Economy

This creates a model whereby water, considered a valuable resource, is conserved, reused and recycled; it is not to be consumed and discarded[10]. One of the cardinal methodologies for attaining this concept is the removal of contaminants to restore the water quality, in order to make it reusable. Another methodology is the recovery of nutrients trapped in human waste in order to use it again in agriculture. This is one of the cardinal goals in the ECOSAN technology[11]. The reuse of wastewater in agriculture was one of the main pursuits of the institutional reform measures adumbrated above[12].

As can be gleaned from above, it is no surprise if it is said that these activities are sustainable, if water and sanitation are to be conserved. Add to them, are the activities that are related to drinking or potable water. So, one can say that any investments in these processes would be worthwhile and sustainable.

4.0 Sustainable Investments

The world population is growing and this would mean more demand for water. Water is something the living things cannot do without. So, it is an inelastic commodity. About 2 billion people worldwide do not have safe drinking water. The United Nations is aware that this statistic would continue to increase due to population growth and climate change[13]. Klein states here five ways to invest in water, namely, water-related funds, utilities, water testing and metering, desalination, as well as

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10. Brears, R.C. Circular Water Economy: Innovative Approaches to Water Resource Recovery and Resiliency. Mark and Focus, Medium, February 2023. https://medium.com/mark-and-focus/circular-water-economy-innovative-approaches-to-water-resource-recovery-and-resiliency-57d33dc6cf92

11. Earth Forever Foundation. Ecological Sanitation: alternative for wise management of human waste and wastewater. EcoSan Bulgaria-Seminar. https://www.earthforever.org/en/p14.html

12. See, Supra, Note No. 6

13. Klein, P.J. Five ways to invest in water. Kiplinger Personal Finance.

building water infrastructure[14]. The institutional and sectoral reform referred above and the water law arising therefrom provided other areas of sustainable water investments.[15]

5.0 Update and Conclusion

Since climate change is considered essential in the status of water availability with time, the Global Water Partnership (GWP) did not lose its voice in highlighting this. So, to bring water-related matters to the front burner, the Global Water Partnership amplified its 'voice of water' at the 28th United Nations Climate Change Conference (COP28)[16]. In this conference, the GWP highlighted four key points on this matter, to wit:

- Essential inclusion of a water target in the Global Goal on Adaptation;
- Driving climate change strategy implementation through climate finance;
- Collaborative processes to strengthen water resilience; and
- Ensuring countries have support they need to access finance[17].

Expanding these key points further, the GWP provided the following recommendations:

-loss and Damage Fund must be inculcated in water resilience matters;
-there must be high level political commitment and leadership to close the climate resilience water investment gap;
-consolidate planning processes at national level into 'Integrated Climate-Resilient Water Investment Plans'.
-provide partnerships that support countries to improve their readiness to access climate finance;
-make water-related adaptation gender-sensitive & gender-transformative;
-strengthen knowledge, south-south exchange and experiences as a way of improving national capacity and coordination to provide climate

16. Amplifying the voice of water at COP28: GWP's four key highlights. Global Water Partnerships, 14 December 2023. https://www.gwp.org/en/About/more/news/2023/amplifying-the-voice-of-water-at-cop28-uae-gwps-four-key-highlights/#Finance
17. Ibid.

-resilient water investments[18].

These key points and recommendations have keyed into the items presented above under water policy, institutional reforms and the water law (legislation).

18. Ibid.

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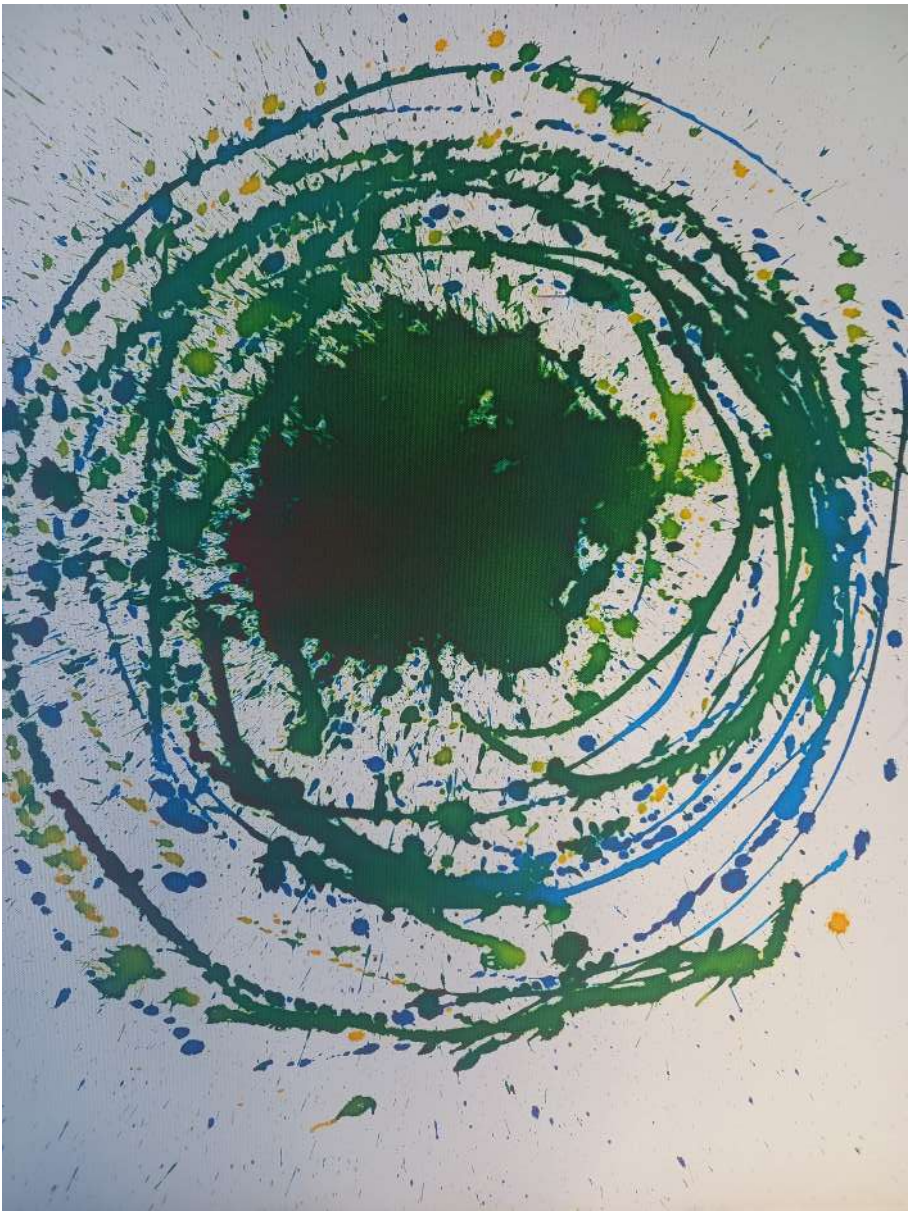
Mr. Joseph Idigo (Programme Manager) at Earth Forever Foundation, Bulgaria is a member of the globally elected Board of Water Supply and Sanitation Collaborative Council, Geneva which is the global WASH leader.



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A CIRCULAR APPROACH TO WATER MANAGEMENT

By Elvira Jimenez Navarro

Water is a finite resource crucial for sustaining life, ecosystems, and economic activities worldwide. As global water demand continues to rise, sustainable approaches to water management are urgently needed. The concept of circularity offers a promising framework for addressing water-related challenges by emphasizing resource efficiency, waste reduction, and closed-loop systems. This article explores the intersection of water management and the circular economy, offering insights into how embracing circular principles can lead to a more resilient and sustainable water future.
Keywords: circular economy, water management, water reuse,

Water is a valuable resource on our planet. Between 2 and 3 billion experience water scarcity (when demand exceeds availability) during at least one month of the year, and more than 2 billion don't have access to safe drinking water (UNESCO, 2021). Factors such as population growth, urbanization, and climate change are expected to increase the number of people affected by water scarcity, from one-third to nearly half of the world's population by 2050 (He et al, 2021). The consequences pose significant threats to ecosystems, human health, and economic development. Therefore, we must rethink how we use and manage water.

Water and Circular Economy

Our society operates in a linear system: we take resources, we make products, we use them (often for a very short time) and we dispose of them, contributing to waste generation and resource depletion. This linear approach applies also to water. Water is extracted for various purposes, used in different settings, such as industrial processes, agricultural production, and urban use, and then discharged as wastewater, often carrying pollutants. This not only depletes water resources but also leads to the pollution of aquatic ecosystems.

As conversations on sustainability progress, the concept of circularity is gaining increased relevance. The circular economy offers an alternative

model to the linear approach by creating a closed-loop system based on three principles (Ellen MacArthur Foundation, n.d):

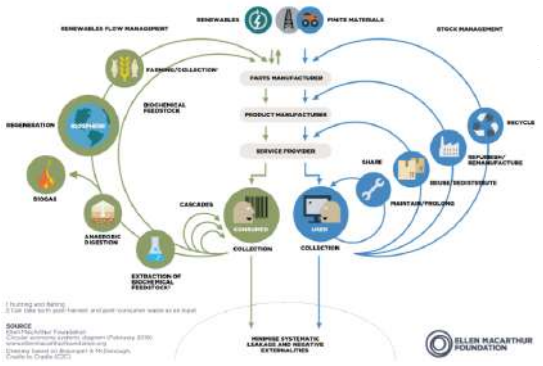
1. Eliminate waste and pollution
2. Circulate products and materials at their highest value
3. Regenerate nature

Resources flow within two loops: biological and technical. In the biological loop, organic materials such as food, wood, or natural fibers can cascade through the system, and become compost biofuels, or even yeasts and micronutrients for production activities. The technical loop includes all non-biological materials such as metals, synthetic materials, and ceramics. Products and materials are kept in the loops by applying different R strategies such as repair, reuse, remanufacture, refurbish, and recycle.

The butterfly diagram developed by the Ellen MacArthur Foundation, shown in Figure 1, visually represents the two cycles illustrating how materials and resources flow in a closed-loop system. Although water is not identified, it is a critical resource moving through both cycles in agriculture production, industrial processes, energy generation, and municipal use.

Water is present in a more or less intensive way throughout the whole lifecycle of products or services, as an input flow but also as an output flow in the form of wastewater. Incorporating circular economy principles can transform the linear water cycle into a regenerative and sustainable loop. This involves designing systems that prioritize water conservation, efficient use, reuse, and recycling.

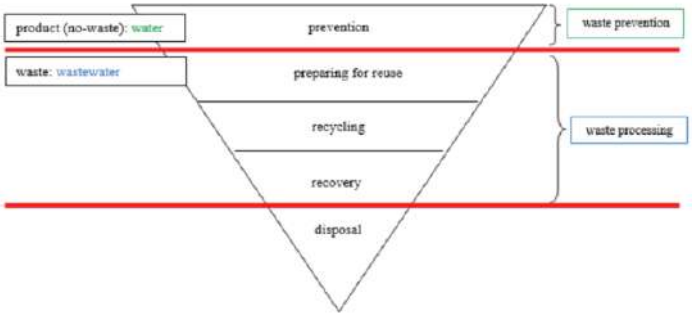
Figure 1
Circular Economy Systems Diagram (Butterfly Diagram)



Note Reprinted from "The butterfly diagram: visualising the circular economy" by Ellen MacArthur Foundation (n.d).
Retrieved from https://www.ellenmacarthurfoundation.org/circular-economy-diagram

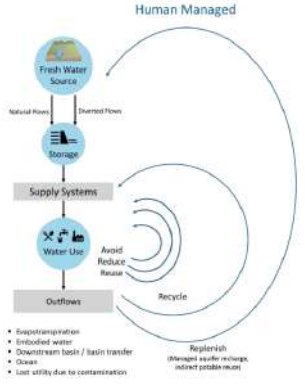
Applying the common R strategies for water management results in a hierarchy of actions, as shown in Figure 2. The first action to be taken is prevention, involving the reduction of wastewater generation, but also of freshwater demand altogether. When reduction and reuse have been implemented, recycling strategies will come into play to turn wastewater into usable water that can cycle back into the supply system. Figure 3 depicts how the different strategies incorporate water back into the cycle in different stages, following the schematics of the butterfly diagram (Figure 3). When recycling is also not possible, the last actions in the hierarchy should then be considered, which would involve water discharged back into the natural water cycles and incorporating it into freshwater sources. It is in this last step that the principle of eliminating waste and pollution gains more relevance. For resources, and in this case, water, to cycle back into any of the phases they have to be free of pollution. As mentioned above, water scarcity is affecting an increasing number of people. The concept refers to demand exceeding availability, the latter being not only in quantity but also in quality (referring to the presence of pollutants). Water can only be reused if it meets the quality standards needed, and even more so, if it is going to return to aquatic ecosystems. The purpose is to close the loops as well as clean the loops.

Figure 2
Water and Wastewater Management Hierarchy



Note Reprinted from "Circular economy model framework in the European water and wastewater sector". By Smol, Marzena & Adam, Christian & Preisner, Michał. (2020) Journal of Material Cycles and Waste Management. 22. 10.1007/s10163-019-00960-z.

Figure 3
Human Managed Water Flow as in the Circular Economy Butterfly Diagram



Note Reprinted from "The Water Footprint in the Context of a Circular Economy" by Sandu, M. A., & Virsta, A., 2021. AgroLife Scientific Journal, 10(2), 170–177. https://doi.org/10.17930/agl2021221
10.1007/s10163-019-00960-z.

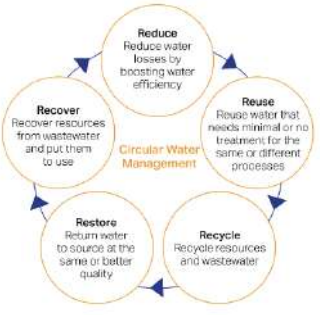
Applying Circular Strategies To Water Management

As freshwater availability dwindles the reduction of water demand represents a critical aspect of sustainable water management strategies. The first Rs in Circular Economy is “rethink” and “refuse”. Applying this to water, what can be done differently to avoid water use altogether? Depending on the sector it would involve looking at the system and processes to identify points in which water use can be eliminated. For example, in agriculture, it could mean rethinking the crops that are being grown and shifting to alternatives that are adapted to the existing climate.

Once a need for water has been established, the other R strategies would be applied, prioritizing reduction and reuse, followed by recycling (Figure 4). Water-efficient technologies, water-saving practices, and water reuse systems play pivotal roles in reducing overall water demand. New technologies are opening new paths into how we can better monitor and manage water use and how to make processes more efficient. Enhancing water efficiency across different economic activities such as the industrial, agricultural, and domestic sectors, is essential to reduce the strain on freshwater sources. As efficiency technology evolves, policymakers must use the necessary instruments to make these advances accessible to as many users as possible, especially in critical sectors and geographies.

Figure 4

Circular Strategies Applied to Water Management



Note Reprinted from “Business guide to circular water management: spotlight on reduce, reuse and recycle”. By World Business Council for Sustainable Development (2017), p.14. Retrieved from https://docs.wbcsd.org/2017/06/WBCSD_Business_Guide_Circular_Water_Management.pdf

One action that is key to reducing water demand and improving the overall efficiency of water supply systems is addressing non-revenue water loss. Non-revenue water includes water lost through leaks, theft, or inaccurate metering. Globally, 346 million cubic meters are lost every day, summing up to 126 billion cubic meters per year (Liemberger & Wyatt, 2018). By improving infrastructure maintenance, upgrading distribution networks, and enhancing metering accuracy, utilities can minimize water losses and optimize water use efficiency (Liemberger & Wyatt, 2010). Therefore, addressing non-revenue water loss is crucial for promoting water conservation,enhancing water security, and fostering sustainable water management practices.

One example of water reuse and recycling with a circular approach is the transformation of wastewater treatment plants into biofactories, incorporating the concept of industrial symbiosis. When the byproducts or waste from a certain process or use of a resource can be used to feed other processes within another industry, it is referred to as industrial symbiosis. Many times, these byproducts or waste cannot be used by the same industry that generated them and can end up being disposed of, wasting valuable resources. Industrial symbiosis is the circular loop opening up more possibilities for resources to move around different industries and continue cycling. Within a traditional treatment plant, wastewater is cleaned through different processes to be discharged back into the water system, consuming energy and producing sludge as a byproduct. Biofactories change this traditional approach to wastewater treatment by generating water to be incorporated back into the system for reuse, turning sludge into a resource for agriculture (fertilizer and nutrients) and other biomaterials, and generating energy (heat and biofuels) in the process.

Nature-based Solutions And Regenerating Aquatic Ecosystems

One of the principles of the circular economy, as mentioned above, is to regenerate nature through circularity strategies. Nature-based solutions (NBS) provide solutions to current sustainability challenges by using or imitating natural processes. They are increasingly being used for disaster risk reduction, food and water security, biodiversity loss, human health,

and climate change (IUCN, n.d). In the context of water, they offer promising approaches for reducing water consumption while promoting ecological health and resilience, in contrast to the traditional approach to using gray infrastructure to manage water. These solutions leverage natural processes and ecosystems to enhance water availability, quality, and efficiency. Green roofs, green pavements, and flood parks are some examples of nature-based solutions that are being integrated into urban planning and water management policies. Regenerating nature itself is a basic NBS. Restoring aquatic ecosystems is imperative for increasing water availability, minimizing runoff and damages caused by flooding, and ensuring ecological sustainability. Wetlands, for example, act as natural wastewater treatment plants. They play a crucial role in water retention, filtration, and purification processes, replenishing groundwater reservoirs, and sustaining surface water flows. Through their natural hydrological functions, wetlands mitigate the impacts of floods and droughts, regulate water quality, support diverse ecosystems, and act as carbon sinks. However, wetlands face extensive degradation due to human activities such as urbanization, agriculture, and drainage for development purposes. Restoring and regenerating wetlands not only helps conserve these ecosystems and their biodiversity but also contributes to securing water availability.

Success Factors To A Circular Economy Of Water

The success of a circular economy of water depends on several factors. Technological innovation is key, with advancements in water treatment, recycling, and resource recovery driving efficiency and minimizing waste throughout the water cycle. Secondly, policy frameworks with regulations, financial incentives, and mechanisms are fundamental to promoting sustainable water management practices and investment in circular water solutions. Moreover, collaboration among stakeholders such as governments, industries, academia, and civil society, is essential for driving the needed systemic changes. Lastly, the role of education and awareness cannot be overlooked. Fostering a shift in consumer behavior and culture towards valuing the importance of conserving water resources and embracing water-saving practices is essential for long-term changes

in water use. By addressing these factors comprehensively and holistically, the transition towards a circular economy of water can accelerate, promoting water security, resilience, and sustainability for current and future generations

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With a passion for finding and promoting solutions to our current challenges. Ocean lover and mother with the purpose of leaving her kids a better world.

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SUSTAINABLE INVESTMENTS IN WATER MANAGEMENT:

UNLOCKING FINANCE FOR A RESILIENT FUTURE

By Dr. Andreja Kodrin & Vicky D. Kefalas

Abstract

This article explores the pressing need for sustainable investments in water management to address the growing financing gap in the face of climate change. It highlights challenges, such as undervaluation of water resources and the mismatch in investment needs, and proposes solutions, including leveraging existing assets, seizing sustainable finance opportunities, and government and stakeholder action. Unlocking finance for water management is not only an economic imperative but also a responsibility for the resilience of our ecosystems.

Keywords

1. Sustainable investments
2. Infrastructure funding
3. Financing gap
4. Climate resilient asset management
5. New business models for water management

Water, our planet's most vital resource, stands at the heart of our quest for sustainability. Yet, the yawning financing gap in water management has only grown wider with the impacts of climate change. As we delve into the critical topic of sustainable investments in water management, the numbers paint a stark reality. Achieving Sustainable Development Goal 6 (SDG 6) on water and sanitation alone necessitates an annual expenditure exceeding 1 trillion USD, equivalent to 1.21% of the global GDP. Economic losses stemming from water insecurity add up to an astounding USD 260 billion annually from inadequate water supply and sanitation, USD 120 billion from urban property flood damages, and an additional USD 94 billion from water insecurity for irrigators.

According to the United Nations statistics[1], if we continue without drastic measures, then by 2030 there will be 1.6 billion people without safely managed drinking water, 2.8 billion without sanitation and 1.9 billion without basic hygiene facilities.

Despite the compelling economic case for water-related investments, the financing flows remain but a fraction of the investment needs. Understanding the underlying reasons is crucial. According to OECD research, several challenges and barriers impede investments in water and water management:

Pervasive Under-Valuation of Water Resource: Water-related investments yield a mix of public and private benefits, including valued goods and services and reduced water-related risks, both present and future. However, many of these benefits are challenging to monetize, limiting the identification of clear revenue streams associated with investments:

1. Mismatch in Investment Needs: Water infrastructure typically demands sub- stantial capital investments, boasts a long lifespan, and incurs high sunk costs. Consequently, a significant initial investment is followed by a lengthy payback period, spanning 20 to 30 years.This contrasts with the preferences of private and commercial investors, who favor short-term projects for quick returns. Long-term financing tailored to the unique requirements of the water sector often remains elusive.
2. Lack of Well-Prepared Projects: The scarcity of well-prepared, bankable projects with clearly defined revenue streams and viable business models hampers progress. Moreover, water-related investments often take on a small-scale and fragmented nature, resulting in elevated transaction costs and perceived risks.

In light of these challenges, unlocking finance for water management requires a multi-pronged approach:
1. Leveraging Existing Assets and Finance: Such financing challenges require more than just calls for increased funding, we must optimize the use of existing assets and finance.
2. Seizing Sustainable Finance Opportunities: The growing interest in

sustainable finance offers an array of opportunities. Taxonomies for sustainable activities, green and blue bonds, and an increased investor appetite for aligning finance with environmental goals are avenues worth exploring.

3. Government and Stakeholder Action: Governments and stakeholders must actively engage in unlocking finance for sustainable water management. This involves crafting policy frameworks that fortify the investment-enabling environment and developing innovative financing mechanisms, such as:

- **-Blended Finance**: Combining public and private capital to fund water infrastructure projects.
- **-Green Bonds**: Debt instruments financing projects with environmental benefits.
- -**Catastrophe Bonds:** Insurance-linked securities that fund disaster resilience measures.
- **-Pay-for-Performance Contracts**: Agreements linking payments to the achievement of specific water management outcomes.

In particular, the involvement of private sector investors is paramount, and financial mechanisms like the European Commission's financial instrument Invest EU fund serve as exemplary innovative approaches, capable of mobilizing private investments by leveraging public money. One of its priority areas includes sustainable water infrastructure.

Furthermore, a number of different sub-projects exist for what can be done to ensure the maximum benefit from water resources, typical projects tendered by public authorities globally include:

Water reservoirs – Reservoir projects are used to harness rainwater and to also create strategic reserves for water. Saudi Arabia, a country with water scarcity, is planning a number of these projects under the BOOT model (Build, Own, Operate, and Transfer). Such a project is the recently signed Juranah Independent Strategic Water Reservoir Project to be established in Makkah City, considered the first of its kind and the largest project implemented in one location as a BOOT. The strategic storage capacity will be 2,000,000 m3, and the operational tank capacity will be 500,000 m3.

Desalination projects – Desalination projects are aimed to create potable water and water fit for various industrial uses. Countries with severe water scarcity such as Saudi Arabia, Tunisia, Algeria or Egypt, where water demand exceeds available resources have a strong vested interest in treating sea or brackish water.

Wastewater treatment projects - Wastewater treatment plants (or sewage treatment plants) process water from homes and businesses, which contains nitrogen and phosphorus from human waste, food and certain soaps and detergents. Water produced through this process is used for irrigation (agricultural processes), hydrants, toilet flushing, cooling water, concrete water, and many such purposes. These projects provide an essential service for environmental and public health. Without adequate treatment, sewage will leach into the environment and contaminate ecosystems.

Conveyance projects – These are water transmission projects including a network of water pipelines, pumping stations and storage tanks and are normally combined with water desalination and / or reservoir projects.

The Public Private Partnership procurement model (known as BOT or PPP) remains a proven structure to procure such projects and to attract private capital from investors and project developers, such as EPC contractors, financial investors (sustainable infrastructure funds) and of course banking institutions, both commercial and DFI / IFIs such as the EIB, the EBRD, and the AfDB. The risk allocation between the private and public sector as well as the revenue mechanism for water projects are critical in making such projects viable and able to attract private capital.

In conclusion, finance plays a pivotal role in realizing the potential of sustainable water management investments. However, to truly address this pressing issue, we must take a step back and reevaluate the broader strategic and economic model, defining the future of water management, the concept of water ownership, and the fundamental nature of water as a right not only for humans but for all life on earth. National water plans such as the ones announced by France and Germany in March of 2023[2]

are necessary for battling water scarcity. Such strategies – which announce forward measures up to 20303 – have been welcomed by industry representatives.

The statistics portray the harsh reality regarding water: 85% of the planet's wetlands have been extinguished over the past 300 years. Protecting and investing in water is not merely a philanthropic endeavor; it is an imperative for our survival and a profound responsibility for ensuring the resilience of our communities, economies, and ecosystems.

1. United Nations, Department of Economic and Social Affairs, Statistics Division SDG Indicators (un.org)
2,3. France and Germany lay out future of water management with national water plans - Global Water Intelligence
treatment, sewage will leach into the environment and contaminate ecosystems.

ABOUT THE AUTHORS

Dr. Andreja Kodrin, Founder and CEO of Quintaum, employees sustainability diagnostic tool, and is an investment, strategic and resilience management expert with over three decades of experience. She serves on the Investment Committee of InvestEU and is a former member of the Investment Committee of the EUR 33.5 B European Fund for Strategic Investments (EFSI).

Andreja has held board positions globally, founded Challenge:Future, a platform for youth innovations on global challenges in 116 countries, and advised the European Commissioner for Transport 2015-2017. Andreja holds a Ph.D. from the Faculty of Economics in Ljubljana, complemented by executive programs at INSEAD, Harvard, IMD, and UC Berkeley.

Her accolades include the Balanced Scorecard Hall of Fame (2004), Sustainability Entrepreneurship Award (2013), and Beta Gamma Sigma recognition (2015 and 2017).

ABOUT THE AUTHORS

Vicky D. Kefalas is the Head of Investments for Consolidated Contractors Company, a top international contractor. She is also a member of the Board of Directors of the European Innovation Council in Brussels, advising the European Commission on strategy, program and policy issues for funding start-ups. Vicky is a member of the Investment Committee of InvestEU, the largest EU guarantee fund with over EUR 26 B to support EU objectives through EIB and other IFIs and NPBs. Vicky is a member of the Board of Directors of the pharma company Lavipharm, listed on the Athens Stock Exchange. She is a former member of the Investment Committee of the EUR 33.5 B European Fund for Strategic Investments (EFSI) and of the Board of Directors of the Athens Urban Mass Transport Organization (OASA). Vicky holds a degree in Economics from the City University of New York and an MBA in Finance from Pace University in New York.

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FROM 'RIGHTS TO WATER' TO 'RIGHTS FOR RIVERS'

SOME REFLECTIONS ON HOW FAR WE HAVE COME AND HOW MUCH FURTHER WE NEED TO GO

By Jeff Camkin

Cover Slide

Hello everyone and thanks to Ecocivilisation for the opportunity to participate in this discussion. I'm going to talk about my experience in transitioning from fisheries management to water allocation, balancing rights and responsibilities, how far we´ve come in water, and where we might go from here.

Next slide – Out of the frying pan...

1. Out of the frying pan and into the fire

I studied fisheries as a mature-age student and went straight into fisheries management in NSW.

My role was to negotiate new, more sustainable rules for fisheries. good scientific research, an emphasis on sustainability, clearly documented and justified proposals, and extensive consultation were expected.

Before moving on to water, I will share another story, 'Shark Bay snapper'

Next slide - map

Pink snapper have characteristics that make them an easy target.
In Shark Bay, WA, there are genetically separate stocks in each gulf, requiring separate management.

In the Eastern Gulf, recreational catch went from 40 tonnes in 1983 to 100 tonnes in 1995. It was estimated only 5% of the original biomass remained.

In 1996 it was my job to find a solution.

Additional research supported initial concerns; we didn't find any juvenile snapper! It needed quick action.

We consulted widely. Tourists were concerned about loss of enjoyment, locals about impacts on business, politicians about losing regional votes, and us about the possibility of extinction of the stock.

The only responsible decision was to close the fishery to allow it to recover, an action only taken once before in Australia.

It was contentious. In 6 months I prepared 104 briefing notes for the Department, Minister, and others!

But, with a reasonable level of community support, the Minister closed the fishery in 1997. It was the first application of the precautionary principle in recreational fisheries management in Australia.

As the reality of the closure kicked in, some community members changed their position, criticising the consultation and the decision. The Minister re-opened the fishery pending further research.

Research confirmed the initial concerns, and the fishery was closed again in 1998, remaining so until 2002.

Next slide – Fast forward ten years

Ten years later the Department won awards for the recovery of the pink snapper stock, and it is now globally recognised as an example of successful fisheries management.

These examples demonstrate the importance of science, consultation and decision-making processes in fisheries management in the 1990s and provide a contrast with what comes next.

Next slide – Whose rights?

2. Whose rights? What Rights? Who's right? – Balancing water rights and responsibilities

Soon after, I was appointed as Manager of Water Allocation for WA, with responsibility for policy, planning and decisions on large licences. The enabling legislation was the 'Rights in Water and Irrigation Act 1914'.
WA was a very different place in 1914, with a population of 320,000 and more sheep than people!

The title, 'Rights in Water and Irrigation', shows very clearly the intent of the legislation.
In 1997 the state's water resources were still managed under the same. In contrast, both the NSW and WA fisheries management Acts were promulgated in 1994.

Perhaps I shouldn't have been so surprised, therefore that water allocation plans were being written by engineers sitting at their desks, that consultation was posting a small ad in the newspaper and hoping nobody saw it, or that files that came to me for decisions focused almost entirely on hydrogeology.

But it surprised me at the time.

Next slide – Can't sleep
With a rapidly growing population and declining water resources, water management plans and licensing decisions were under increasing pressure. We lost 26 appeals in a row.

Our science was unable to support the allocation limits and there were weaknesses in the process. Clearly, our WRM capabilities did not match the increasingly complex situation.

I often laid awake at night worrying about what I was missing in my decisions. So, I went looking for ideas around Australia and internationally where there were similar challenges.

New slide – Premier's Water Symposium
The 2002 Premier's Water Symposium involved water professionals and community members discussing the future of water management over 3

days. Symbolically, they sat in the seats of the parliamentarians.

Government adopted wide-ranging recommendations from the Symposium, including The 2-person review of water governance (of which I was one) led to sweeping reforms, including:

-commitment to replacing the RiWI Act 1914 as the highest legislative priority
-creation of a new Department of Water to focus on WRM
-the first State Water Plan
-investigation of WRM fees as a sustainable funding base and to balance water rights and responsibilities.

Consultation on the fees met with opposition from many licensed water users, as it often does.

After 2 years of consultation, the introduction of WRM fees was agreed. But it unraveled when several backbenchers from marginal electorates walked out of a final briefing and spoke with higher powers.

The introduction of fees was cancelled and nearly 20 years later the costs caused by licensed use of the community's water for private gain in WA are still met by the community.

Further, the RiWI Act has still not been replaced!

Next slide – Water and irrigation decision making

Through later research at CSIRO, I better understood the deep complexity of WRM.Largely undeveloped and sparsely populated, northern Australia has wilderness appeal and is a special place for both Indigenous and non-Indigenous Australians.

For over 100 years there have been grand ideas for developing the north for large-scale irrigation.

We examined 12 water plans and large licence decisions and found over 350 different factors that someone, somewhere, had considered in their

decisions!

WRM is enormously complex, and it is no wonder water managers can't sleep!

Next slide – Complexity, uncertainty and sustainability

We felt that achieving sustainable irrigation required embracing the complexity and uncertainty of WRM.

And it needed a new mindset, from repeating past practices to a more context-dependent approach.

A critical step towards that was to rethink how we see sustainability. I really like this quote:
"Sustainability is better seen as a measure of the relationship between the community as learners and their environment, rather than an externally designed goal to be achieved."
In other words, sustainability is a learning process.

Next slide – Rivers are people too now!

3. Rivers are people too now! – How far have we come and how far do we still have to go?

I think we've come a fair way, reflected in the steps in this figure.

There is now more focus on social and environmental outcomes, the responsibilities of water users, achieving human rights, and incorporating Indigenous rights and local knowledge in WRM.

We've seen growth in the 'Rights of Nature' movement and early examples of legal personage for rivers.

There have been some big steps forward in water, and, like fisheries management, some great successes.

Next slide – But is it enough?

But the 2023 UN WWDR paints a bleak picture. I won't read all these

statements, but you get the idea.

Too many people still don't have access to safe water and sanitation, freshwater ecosystems are amongst the most threatened globally, and biodiversity is being lost at an alarming rate.

Next slide – Other signs we still have a long way to go

Here are a few things we still hear too often….

And here are two specific examples from just last week!

The Northern Territory government is proposing to slash approval times for land clearing and water licences to create a $700 million increase in agriculture within a decade. Commenting on the strategy;

Environmental groups said the plan had a "myopic focus on growing agribusiness without any regard for its consequences as to who pays", and "Politicians should be standing up for our intact rivers and savannas, not facilitating their destruction".

A new Ministry for the Environment report from NZ demonstrates systemic failure.

The report "dismantles the idea that a cascade of plans, frameworks, national standards, and consents is leading to healthier water bodies." It says, "the regulatory system, at both the national and regional level, was not strong enough to protect the lakes, nor deliver on mana whenua (ie the local Indigenous people's) aspirations for freshwater."

Despite the progress, I have little confidence that our current attitudes, systems, and capabilities will allow us to meet the increasingly difficult and complex water challenges of the future.

Next slide – So, where do we go from here?

4. So, where do we go from here?

There are lots of things we must keep doing and do better in water, but incremental improvement won't be enough.

We need new thinking, bold approaches, and greater commitment than ever before.The UN Office for DRR recently called for transformative action to address water-related risks. It said..

“To address these risks before they become disasters, countries must break down silos between disaster, water, climate and environmental policies for a comprehensive approach to managing risks”
I agree. These and so many other things are all deeply interrelated.
Our ability to look at the entire system – to focus on the whole while also working on the parts – is critical.

And that is where I think Ecocivilisation has hit the nail on the head.
When Human Rights and Rights of Nature are together and equal in our hearts and minds, and when they become central to what communities expect and demand, decisions in politics and business will follow.

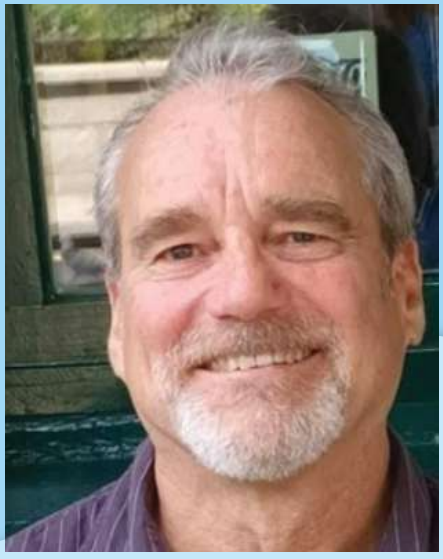
We must go beyond the idea of acceptable environmental impact, even sustainability, to expect that new developments are nature- and humanity-positive, and existing developments transition to it.

In other words, placing higher expectations and responsibility on those that use community resources like water for private gain.

The Earth is dying the death of a billion cuts, and we need to put down the knife.

Next slide – Most importantly
In whatever walk of life we choose, it is up to us to accept the responsibility to keep learning and to keep influencing toward a better world and a more equitable future.

ABOUT THE AUTHOR



Jeff Camkin is a multi-disciplinary water and sustainability specialist with 30 years of experience in water, fisheries, and agriculture governance, policy development, resource allocation, stakeholder engagement, research, and education. With a strong background in government, research organisations, NGOs, and academia, Jeff's focus is on promoting policy-research-community connectivity through trans-disciplinarity, better utilisation of all forms of knowledge, more effective collaboration, and capacity building. His current roles include Adjunct Professor (Water Resource Management) at the University of Western Australia's Institute for Agriculture, Senior Associate at Aither (a Ricardo plc company), and Senior Fellow (Water Policy and Management) at the Institute for Study and Development Worldwide in Australia, Water Policy Specialist at TARH in Portugal, External Advisor for the Myanmar Water Academy, and member of the International Committee on Irrigation and Drainage Working Group on Capacity Building, Education and Training. As a Churchill Fellow, Endeavour Executive Fellow, Australian National Commission on Irrigation and Drainage Fellow and CSIRO Travel Fellow, and in his capacity as an international water and sustainability consultant, Jeff has developed a deep understanding of water management around the world. With tertiary qualifications in natural resources law and applied science, and a strong commitment to capacity development, Jeff has designed and delivered new water education at the master and trade certificate level for participants from over 70 different countries. In 2014, Jeff co-founded World Water Policy Journal as a platform to support the world's emerging water leaders and thinkers, and he remains Co-Editor-in-Chief. jeff.camkin@uwa.edu.au

WATER RISK REDUCTION
SUMMARY REPORT

Dr.Alice Bouman-Dentener

Summary
The panel of renowned experts from South, East and South-East Asia pictured Water Risk Reduction as a complex issue that involves information gathering to understand the risks, improving governance to manage the risk, and investing in resilience of those that are exposed to the risks, which includes disaster preparedness. The panelists, from their different backgrounds and experiences, emphasized the importance of bringing Disaster Risk Reduction to the lowest appropriate level, and to ensure that local communities are informed and willing to jointly address the problem. This process of constructive engagement of the different stakeholders (from local governments, business, local academia to different civil society groupings including women) is often not given the (political) attention it deserves. In cases where this pre-investment in awareness raising, dialogues and developing joint risk perception and solution finding have taken place, the results exceed all expectations. In developing appropriate solutions, the social dimension is as important as technological innovation, and citizen science should complement academic knowledge to ensure that local reality guides the implementation.

While most of the discussion was on resilience to floods, draughts and other water-related natural disasters, the panel also touched upon the destructive forces of man-kind. As human beings, while only being a tiny part of the entire natural system, our ecological footprint is enormous through overconsumption and pollution. The message of Ecocivilisation is to live in harmony with nature.

Introduction
Disaster Risk Reduction (DRR) is a key pillar of sustainable development that leaves no one behind. Important factors that drive disaster risk levels are climate variability, poverty, poor land-use planning and management, and ecosystem degradation, as well as the fact that people and assets are increasingly located in areas of high risk.

To address the complexity of DRR, the Sendai Framework for Disaster Risk Reduction 2015 – 2030 was adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015. The Sendai Framework is an integral part of the 2030 agenda agreements to achieve Sustainable Development. Through its four main components (understanding risk, strengthening governance, investing in resilience and ensuring preparedness) it presents a systematic approach to reduce disaster risks as a collective response from different disciplinary and institutional groups.

Water feeds life on earth, but at the same time it can put our life and livelihoods at risk. In fact, water-related disasters (storms, floods, draughts, tsunamis, landslides and debris flows) are the predominant disasters on our planet. In 2021 alone, almost 102 million people were affected by disasters; and 97.7% of those disasters were water-related (2022 HELP Global Report). Climate change in particular is a factor that reshapes the future for freshwater availability, as precipitation patterns and the occurrence of extreme weather events are changing, and rainy seasons and the timing and quantity of melt water from snowpack and glaciers are shifting.

As part of the Ecocivilisation Year of Water 2023, Disaster Risk Reduction was addressed on 8th Feb 2023 by renowned scientists, experts and practitioners from South, East, and South-East Asia. From their life-long experience they debated how to effectively reduce the risks of water-related disasters.

Proceedings

The webinar opened with the Algonquin Water Song and a brief introduction to the Year of Water by Ecocivilisation Chair, Ms.Violeta Bulc, after which Ms Alice Bouman-Dentener took over to moderate the panel discussion.

Starting from the Sendai Framework for Disaster Risk Reduction (DRR) and illustrated by examples from Japan, Mr. Kawasaki argued how technological innovation alone is not enough to manage disaster risks effectively. He demonstrated that listening to ancestral wisdom from past disasters prevents loss of life and property when disaster strikes again.

disasters prevents loss of life and property when disaster strikes again. He furthermore made a case for community preparedness by enhancing DRR literacy at community level

Mr. Dipak Gyawali, through a colorful depiction of the hydrosphere, enlightened us that while blue (surface) water takes up most of the space in policy and research, it is through the white (atmospheric) water that climate change is affecting us most. Climate change creates unexpected shifts in the time, place and quantity of precipitation that nourishes agriculture and the earth's ecosystems (soil moisture = green water), and trickles down into the groundwater reserve (brown water). He argued that public sector, private sector and the different civil society groupings have a totally different risk perception and therefore think in different solution scenarios. Adding the fact that there are multiple risks, constructive engagement between those different sectors in society is needed for the development of piecemeal solutions in a specific community or situation. As many of the problems need to be handled locally, citizen science is indispensable to manage risks sensibly and effectively.

Ms. Athukorala next illustrated how water-related disasters affect women and men differently. She argued that gender-neutral interventions are often gender-blind, bypassing the specific vulnerabilities of women in cases of disasters or conflicts. While underscoring the importance of building resilient societies through awareness raising, capacity development and community engagement, she added the need to ensure that DRR, and efforts to ensure water security in general, are gender sensitive. Advocating for gender-sensitive and women-inclusive water action since 1995 and noticing how lack of attention for this essential factor persists, she expressed the hope that the upcoming UN Water conference will bring the necessary change to position women as agents of change and adequately support women's efforts to build resilience in their communities.

Prof. Khin NiNi Thein framed DRR in the Ecocivilisation thinking: The human species is not the center of the universe, but just a tiny element of the ecosystem. The materialistic and anthropocentric thinking of present times disrupts this natural system; the Ecocivilisation movement strives to restore harmony with nature so that sustainable development

becomes a reality for all. As healthy ecosystems and secure livelihoods depend on the sustainable governance of water bodies, Ecocivilisation has dedicated the year 2023 to water. Prof. Thein then turned to the High Level Experts and Leaders Panel on Water and Disasters (HELP), that was called into being to jointly address the water-related disasters. HELP raises awareness globally, and through its flagship initiatives and publications shares the wisdom of experts and practitioners across the globe. Water should not be looked at in isolation, she concluded, but viewed as a circular system of life, integrating the hydrosphere with the other natural systems (atmosphere, lithosphere and biosphere), and taking into consideration the human-water interactions in all its performances, physical, technological, spiritual, ethical and cultural.

Based on the questions and remarks from the audience, the discussion centered around how to make the decentralization of DRR more concrete. Examples from Asia and Europe (River Rhine clean-up) showed how engaging local communities solves problems where governments alone cannot. There are different roles and responsibilities at the different levels of engagement. While governments and the international community are responsible for policymaking and agenda setting, international policies and dialogues often miss the real problems on the ground, which are effectively addressed by the local stakeholders (local governments, business, academia, civil society) when brought together in a constructive engagement. Political will and support is essential to enable local action partnerships and galvanize implementation. Local communities very well understand their problems with water but might not have the total picture and means to implement the appropriate solutions. This needs investment in creating a common understanding based on the same level of information for all. And important element is taking a nexus approach: analyze the situation from different angles. At the very local level, decisions tend to be nexus decisions; in the departmentalized government structures people work in silos and integrated decisions are lost. In the wake of the SDGs, we increasingly see government bodies emerging where the different ministries look at a specific problem in conjunction and look for the most appropriate solution for all. Cross-pollination is also mentioned as a means to accelerate progress, using the experience and wisdom of different parts of the world, as united in the HELP documents.

Finally, Mr. Hans Gutman contextualized the ADPC approach to water risk reduction to the earlier presentations and discussion. He zoomed in on Early Warning Systems to illustrate how highly technical information is brought to the end-users. He emphasized the importance of ensuring that the end-user understands this knowledge by tailoring it to the end-user reality. This component is often not adequately featured in project proposals. Lastly, he remarked that water risk reduction is a good entry point for transboundary cooperation on water, especially where sensitive issues such as water rights have created blockages.

ABOUT THE AUTHOR

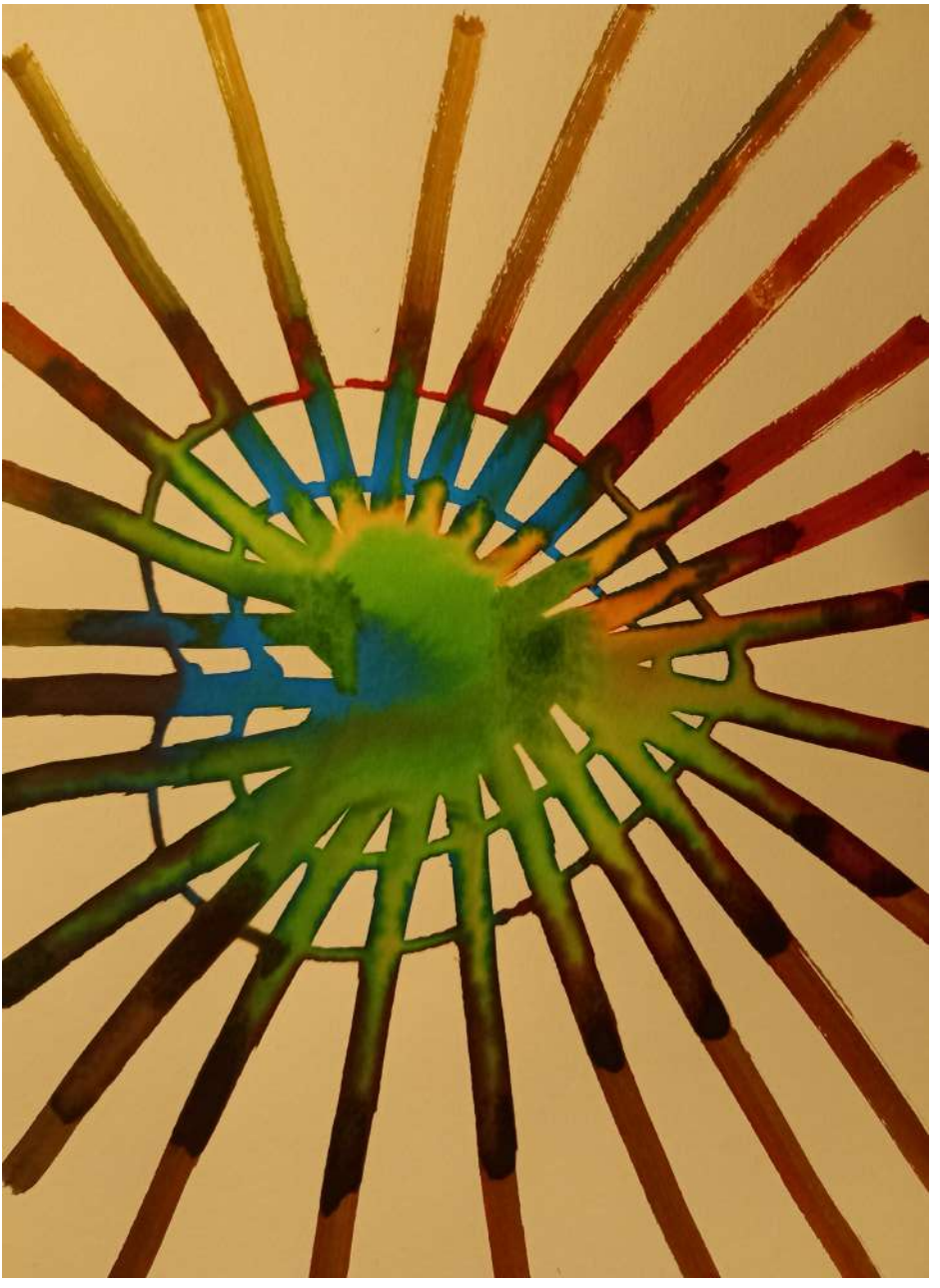
Dr. Alice Bouman-Dentener graduated as a biologist/ethologist from Utrecht Uni- versity in the Netherlands. In the course of her international career in the sustainable development field she has developed a focus on water governance, social inclusion and gender.

Alice is the Co-Founder of Cansu Global, Director/Owner of DiploriA – sustainable development solutions ,Vice-President of the Water Research and Training Centre (WRTC) Myanmar, and Member International Steering Committee (ISC) of the High-Level International Conferences on the International Decade for Action “Water for Sustainable Development”. She is a longstanding member of the Advisory Board of Gender Concerns International (GCI).

Alice founded the Women for Water Partnership (WfWP) in 2004, which under her Presidency developed into the leading global women’s civil society network in the water domain with a rank and file in nearly 100 countries. When leaving in 2014, she was granted the title of Honorary Founding President.

She is the first laureate of the HRH Prince Mohammad bin
King Faisal (I) El-Hashemite Award.

WATER AS A BEING



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MY WATER SONG

By Bindiya Bedi Charan Noronh

water speaks and tells me
get up! move!
my beautiful lover!
behold the winter of scarcity is over
it has rained aplenty and left
flowers bloom in the enriched soil
it is time for a singsong
the voice of peacocks can be heard in our land
the groves are laden with mangoes
the flowering vines exude perfume,
get up
come, come, my beautiful beloved
my little brown rock chat hiding in the cleft of rocks
the Indian swiftlet in the hidden cliffs,
let me see your face,
let me hear your chirpy chorus,
for your voice is sweet and your face enchanting
water in abundance flows to nourish
women, men and children
the earth sings in unison with water…….

Bindiya Bedi Charan Noronha

ABOUT THE AUTHOR

Bindiya Bedi Charan Noronh is a linguist employed with a Diplomatic Mission in New Delhi, is an author, passionate poet, bibliotherapist, social worker and educationist. A happiness harbinger, heart beating in her community-building volunteer organization - “Mil Baant Ke–Sharing with Dignity” - her mission lies in spreading literacy, stray animal care, teaching children, and young adults, relationship counseling, and skill-building for women. She received a commendation on 03.03.22 from the Union Minister of Women & Child Development Mrs. Smriti Zubin Irani 03.03.2022 in recognition of dedicated work related to women and child support. She was conferred the Doctor of Philosophy (Honoris Causa) for Humanitarian Education on 10.09.22.
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REMEMBER THE DROPS...
(WATER AS A BEING/SPIRITUAL DIMENSION OF WATER)

By Lena Klopcic

You are an amazing being, and when you will recognize that, you will recognize the great Love – the great Source. The Source is the water that pours your Body – each and every cell of it, the water that runs for you because you physically need it, the water that pours the Kingdom of Plant beings and the Kingdom of Animal beings, which you also have agreements with to sustain the life as you enjoy it when being hosted on Planet Earth.

Water is a Source. A Source of Energy. A Source of Spirit. A Source that powers you, a Source that powers everything that exists. Everything that has been, is, and will be created. It's a power itself.

Once you accept this Source within yourself, you will be able to recognize it in everyone and everything. When you come to this recognition, take time to see the Beauty in it --- that powerful Beauty coming from the Universe and from the inside at the same time. Give it a Space to glow. Starting with you and within You, and then share this glow generously on. Like the Olympic torch, just that in this case the glow in your eyes can be passed on to thousands more people than one torch can reach. And know that of those thousands of newly glowing lights in the eyes of your fellow human beings that you will help to awake, thousands and thousands more will start to glow. Once you recognize the great Source.

It can show itself as a pure white lake in the sky, spreading into a magnificent waterfall, and each Drop coming from this waterfall is you, dearest Soul. Each Drop is you, indeed. We – the Drops – are always within you. You can tap into the Divine when directing a thought to us – the Drops within you. You can find us in every cell of your beautiful Body, and you'll be able to connect with us and blend with the Divine intelligence we carry when you go into your heart chakra.

When you are there, just stay there for a while and allow the flow of water – the flow of Source just fluently runs through you. To make it more graphical for human perception, you can easily imagine your blood and lymph cycling in your body. Then simply allow this feeling of great connection with all there is -- to be. Just observe it, and then let it sink deeper and deeper in your awareness.

You see? You are not alone. You never have been. How could you be, when you – dearest beautiful Soul – are a part of Divine? Know that the feeling of separation comes from your Mind – the very same great Mind that is an amazing instrument that completes you as a human being in this Earthly life, yes. Now, the Mind doesn't have some unwanted agenda – not at all. It's just focused on assuring you – as a very valuable human being – to feel safe and secure. It is there to protect you - that's how valuable you are.

And when it happens that – again, to assure this safety and security needed for a human being to feel welcome in the arms of magnificent Mother Earth, this same Mind can sometimes drift away from the Spirit, so then the Soul is there to do its Divine magic in this Earthly school of life. And it is all good – this too is a part of your great experience in this beautiful gift called Life.

On such occasions, just remember the Drops, remember the Source that lives within you, through you, with you, and - for You. This is exactly the moment to give space to Growth. Growth then lifts the frequency, and that opens a room for bringing in more Love.

You are an amazing being, and when you will recognize that, you will recognize the great Love – the great Source. The Source is the water that pours your Body – each and every cell of it, the water that runs for you because you physically need it, the water that pours the Kingdom of Plant beings and the Kingdom of Animal beings, which you also have agreements with to sustain the life as you enjoy it when being hosted on Planet Earth.

Now, we wish you to use your newly recognized power coming from

within and directly from the Source at the same time for the highest possible Good – the good in the form of Love that will give uplift to your great Civilization. You all as one can raise the Vibration of the whole planet and the Universe, as that is the only natural path of planetary, universal, and galactic Evolution. And you came here in this - human concept - ‘time and space’ for a purpose and with a mission to take part exactly in this process. So, don’t be afraid, just play along. Just let it flow, and take a ride in it. Enjoy, dear Soul. Enjoy.

Love,
The Drops

The message from the Drops was channeled by A. Lena Klopcic.

ABOUT THE AUTHOR

Alenka Lena Klopcic's passion is nature and her field of interest is energy, both extending to environmental and climate challenges. Lena's drive is to make a positive change in this world. Therefore, next to her daily work in the energy transition and climate-related issues, and her past academic part which includes two PhDs and several scientific papers on energy-related issues, she also holds a post-graduate certificate in Ayurveda (the science of life) from her Alma Mater Europaea, Master Certificate in Energy Medicine from 'The Four Winds', and she is a certified Jungian coach. She likes to make fun that the Universe didn't give her exact guidelines for this Earthly life, where she is supposed to work with the energy so she is involved in the areas where energy plays a role in its tangible form – in a form of commodity, like electricity and gas – as well as in the areas where it is present in the form of human and planetary Energy. The latter is a baseline for ayurvedic sessions and the energy coaching work that Lena does too. Lately, she has been invited to do more and more channeling sessions. In this sense, she has also channeled the message regarding the Water as a Being of Life.

“IF WATER CAN SPEAK”; REMEMBERING HOW TO BE AGAIN

By Yuko Kudo

If water can speak…
Would water speak to us?
How would we know if that’s water speaking?
What would the voice sound like?

If water can speak…
Would the Pacific Ocean and bottled water speak the same language?
How would the Gulf with spilled oil express the pain?
What’s on mind of Tsunami and Flood when they are forming?

If water can speak…
Would the ocean tell us what it's like to be connected all around the world?
How would the icebergs and the glaciers know that they are the same but different?
What would rain feel about falling down from the sky and soaking into the earth?

If water can speak…
What would water tell us?
How much do we want to know the truth?
What if we’ve been all wrong?

If water can speak, what would you do?

- Yuko Kudo “If Water Can Speak” -

I remember the time I believed that being able to see the rainfall was my superpower. Being able to see the rain in a way that I could see was not something others could do. I had a special connection with the rain and I

felt so in tune with the sound of rainfall. I went out without an umbrella with my rain boots on and jumped around feeling the rain on my skin. I stopped doing that when my parents saw the news about the acid rain. I started wearing an umbrella so that my bags wouldn't get soaked, my books wouldn't get damaged and I wouldn't get wet… the magic started to get blur. There was a distance.

If water can speak, here's what I'd say. "Thank you for dealing with us. I'm sorry for the ways that we have been behaving. Would you guide us to make it right?" So many of us have forgotten how to BE. We forgot how to be with nature, to be with ourselves and with each other. If we can remember how to BE, then there's hope in overcoming the challenges that we face now. Imagine a world where we listen to water. We will have a completely different relationship with Water. Try replacing the word "Water", or a version of water, in the piece above with tree, air, inequity, injustice, and education. See what new perspective, or maybe a question, you will discover.

Just within the Ecocivilisation's Year of Water series in 2023, so many initiatives and experts are doing incredible work in the field of water, including artists and cultural workers. We talk about water, learn and research about water, and set policies and legislations about water usage and water pollution. We create artwork and share stories about the importance of water. Water is life. Each region has its complexity that requires a specific understanding of the area and people. We acknowledge that water challenges are intertwined with other challenges locally and globally. Economic disparity, Gender inequity, lack of Education/Jobs/Housing, Health challenges, you name it. And I feel responsible as an artist to continue sharing stories that give people hope that there's another way. Storytelling humanizes. This is where "my" future can become "our" future. It creates opportunities for us to start remembering how to be with each other, with ourselves, and maybe with all beings.

In the book "Return to Love", Author Marianne Williamson says, "Just like a sunbeam can't separate itself from the sun, and a wave can't separate itself from the ocean, we can't separate ourselves from one another. We

are all part of a vast sea of love, one indivisible divine mind."

We are all connected, whether we acknowledge it or not. Humans have created illusions after illusions that made us believe that we are separate from each other which led to the ideas such as "If you are not with me you're against me", "I have to have more so that I have enough just in case" and "I don't belong." But think about it.

The concept of countries, religions, and even work-life balance, these were created by humans. Our ancestors knew how to live with nature. We created what we believe to be true. That means that we have the power to create a whole new feature if we want to.

We have to start somewhere. We have to work together and do our part. Artists will tell the stories. Teachers will encourage people to learn. Healers will share their wisdom. Leaders will pave the path for others. Together, we will relearn how to BE. We will practice knowing that everyone's journey will be different. We were never separate even when it seems like it. And when you are not sure, take a pause and listen. You might find a story that you didn't even know that you needed. We can do this.

Love and light
Yuko Kudo

ABOUT THE AUTHOR

Yuko Kudo is native Japanese multi-dimensional artist based in NY. She uses art and storytelling for community. Through her work as a photographer, she has appeared in Forbes and TIME magazines, among other media outlets. She facilitates the creation of collaborative educational spaces focused on the intersection of art and activism. Executive Producer of a documentary series "Untapped Storytellers" and "Dear Asian Girls" to address Representation and Equity in Arts & Culture.Upcoming Project "Braver Love Podcast". A Board member of Prime Produce Apprentice Cooperative and a member of Artistic Council for People's Theatre Project. Japan Chair of G100 Ecocivilisation.

WATER AS A COMMUNICATION MEDIA

By Manca Korelc

The Story Of How A Lake Is Teaching Me To Unravel The Lake Within

I've been drawn to lakes in a very special way for as long as I can remember. You know that feeling when you look at something and immediately calm down? That's what happens to me by the lake. Add a wooden pier, even a broken one, melancholic trees standing like guardians preserving divine solitude, and timid birds gliding on the serene water's surface – that's everything I need at that moment. I don't visit a lake, I experience it.

In winter 2017, I visited one of nearly 1500 lakes, a fairytale beauty nestled in a forest with a beautiful view of the mountains. Standing by the lake, a wave of inexplicable sadness swept over me, and tears welled up in my eyes. I was shocked, surprised. This intimate experience started a spiritual journey of unraveling my need to visit all lakes in Slovenia and anywhere I go.

Could lakes be more than just bodies of water? Is this lake trying to talk to me? It was covered in ice, but the water in the lake had direct access to the water in my soul. This silent dialogue in words I do not yet understand, sparked a loving curiosity about the intelligence of water as a communicator.

Discovering lakes is not just about visiting bodies of water, but a lifelong journey among beautiful still waters, unforgettable experiences, and discovering the depths of the lakes and ourselves. Lakes can also be calm and peaceful on the outside, but have swirling water at its bottom. Surrounded by peace on the outside, but with stirring thoughts and raging battles at the bottom of their soul. Just like people. The lakes have taught me that beauty is not in the water itself, but in our projection on the surface of the lake.

Our body is around 70% water which implies that inside of our core lies an oasis, a lake of information waiting to be explored. Visiting a lake is not merely a physical experience. It is a spiritual opportunity to connect with the wisdom that lies within us.

What is this lake trying to tell me? It's not about the hundreds of lakes I visit, but rather about exploring my inner lake. All I need to learn is the lake language.

What is water?

Researching the world of water, a question lingers in my mind: what is water? Or who is water? With each new encounter with a lake I see D.H. Lawrence was right when he poetically said:

“Water is H_2O, hydrogen two parts, oxygen one, but there is also a third thing, that makes it water, and nobody knows what it is.”

An enigmatic sentence that leaves so much mystery and at the same time tells it all. Will we ever uncover the third element? Can it be consciousness, the source? Maybe, it's not about defining water, but rather understanding its significance to us and what we, in turn, mean to each other. Nurturing each other with quiet conversations full of love.

Keywords: lakes, water, communication, media, spirituality

ABOUT THE AUTHOR

Manca Korelc is a lover of lakes, a LinkedIn trainer, and a book author. Since 2017, she has been creating the Moja jezera (eng. My lakes) project, visiting all of the lakes of Slovenia. Her website has become a true lexicon or, as she likes to call it, an encyclopedia. At the time of writing, the collection has 1495 lakes, 137 waterfalls, and 16 lake view mountains. Manca Korelc has received 3 awards for the Moja jezera project.
Professionally, she is an entrepreneur and LinkedIn trainer, teaching companies how to use LinkedIn for marketing and sales. She is also a speaker at business events.

Manca Korelc is the author of four books: three about lakes and one about LinkedIn.

Photo Credit -Deirdra McMenamin Artist™ © Deirdra@duck.com

WATER A TRULY MYSTERIOUS BEING

By Dr.hc.Violeta Bulc

Introduction

In this chapter, I wish to pay homage to water—an enigmatic entity that has always captivated me. I've felt a profound attraction to water throughout my life, finding solace and joy in its embrace. Whether swimming, playing, or simply being near water, I experience a deep sense of connection and belonging.

The magical reflections that dance around me after diving beneath the surface and resurfacing through layers of fractured light fill me with boundless joy and a profound sense of liberation. Through water, I feel intertwined with everything around me, touching the universe upon my skin and within my spirit.

Snowflakes, with their intricate shapes and patterns, have long fascinated me, serving as a testament to nature's boundless creativity, as Andrej Detela beautifully explores in his book "Sintropija v polifaznih zibelkah," published in 2014:
“Sitting beside the water, I lose track of where I end and nature begins, where the boundaries dissolve, and I become one with the stream, the rocks, and the environment. Water acts as the connective thread that unites us all.”

Yet, despite our intimate relationship with water, much about it remains shrouded in mystery. The depths of its mysteries present a vast frontier for future exploration, offering not only a deeper understanding of water itself but also profound insights into our existence.

Here it is, a patchwork of fascinating properties, numerical figures, mysteries, scientifically proven facts, and uncharted territories. This compilation is crafted with a humble intention to pay tribute to and deepen our respect for the cosmic being that is water, the very essence that sustains life as we know it today.

The Planet Earth Is A Lot About Water

Water is a mysterious and essential element that covers approximately 71% of our planet's surface, predominantly in the form of oceans, seas, and other bodies of water. This extensive coverage plays a crucial role in regulating climate patterns, supporting biodiversity, and shaping human civilization.

The total volume of water on Earth is estimated at around 1.4 billion cubic kilometers, distributed across various reservoirs or "spheres[1]." The oceans contain the largest volume of water, accounting for about 97% of Earth's water. This vast expanse of water, totaling approximately 1.332 billion cubic kilometers, influences global weather patterns and serves as a habitat for diverse marine life[2]. Ice caps and glaciers hold a significant portion of Earth's freshwater, constituting about 2.1% of the total water volume. These icy formations are critical for maintaining freshwater reserves and regulating sea levels[3].

Groundwater, stored in aquifers beneath the Earth's surface, represents around 0.6% of Earth's total water volume. It is a vital source of drinking water for many communities globally and sustains terrestrial ecosystems[4].

Lakes and rivers collectively hold a relatively small percentage (0.009%) of Earth's water but are essential freshwater sources for local populations and ecosystems[5].

Water vapour in the atmosphere, though a minor component of Earth's water inventory, plays a critical role in the hydrological cycle by contributing to precipitation and weather systems[6].

It's important to note that the distribution of water on Earth is not static and can change over time due to natural processes and human activities[7]. The water cycle continuously redistributes water between different reservoirs, and factors such as climate change, land use, and water management practices can influence the availability and distribution of freshwater resources.

The Role Of Groundwater

Groundwater, also known as underground water, is a vital component of Earth's freshwater resources and plays a critical role in sustaining life on our planet.

It is stored in aquifers and underground reservoirs, offering a reliable supply of freshwater for human consumption, agriculture, and industry. Many communities rely on groundwater accessed through wells and pumping systems that tap into aquifers[4].

Groundwater is replenished through precipitation and surface water infiltration, sustaining aquifer levels and supporting ecosystems that depend on groundwater flow[8].

Its resources can be vulnerable to depletion due to over-extraction for irrigation and municipal use, especially in regions experiencing water stress. Additionally, groundwater can be susceptible to contamination from pollutants leaching into aquifers from agricultural activities, industrial sites, and improper disposal of waste.

Sustainable management of groundwater resources is essential for ensuring long-term water security[9]. This includes monitoring groundwater levels, implementing groundwater recharge strategies, regulating groundwater extraction, and preventing contamination through effective land-use planning and pollution control measures.

Groundwater accounts for a significant portion of the world's freshwater reserves and supports agriculture, industry, and ecosystems in both rural and urban areas. Many regions rely heavily on groundwater to meet their water needs, highlighting the importance of sustainable groundwater management practices.

Understanding the characteristics, distribution, and sustainable use of underground water resources is crucial for addressing water challenges, ensuring resilience to climate change, integrating regenerative methods into our daily practices, and safeguarding freshwater ecosystems for future generations.

In the end it is about our behavior, responsibility, and simply love for the beauty of natural ecosystems that we have been originally part of since our beginning.

Water In Human Biology And Society

Water plays a vital role in human biology and societal functions as well, supporting various physiological processes and cultural practices. It is essential for cellular processes, nutrient transport, and waste removal in the human body, comprising approximately 60% to 70% of body weight[15]. Water regulates body temperature, supports joint lubrication, and maintains fluid balance within the body, crucial for overall health and well-being[16].

Given that a significant portion of our body comprises salty water, we are inherently sensitive to the influence of the Moon. The position of this celestial body can impact various aspects of our behaviour, sleep patterns, female cycles, overall physical condition, and mood.

Overall, the concept of lunar influence on human biology and behaviour remains intriguing and subject to ongoing scientific investigation and debate. Individuals may perceive personal connections or experiences related to lunar phases, but conclusive scientific validation of these effects requires further research and evidence.

Water In Human Society

However, there is no doubt that water has a significant meaning in our societies and cultures. Water's cultural and spiritual importance transcends geographical and historical boundaries, resonating deeply with human experiences of life, transformation, and interconnectedness with the natural world.

Water is integrated into rituals and ceremonies worldwide to mark significant life events and spiritual transitions. Examples include baptism in Christianity, where water symbolizes initiation into the faith; purification rituals like ablution in Islam, ritual baths in Hinduism and Judaism, which cleanse participants spiritually; and water offerings in religious

ceremonies, symbolizing purity, renewal, and connection to the divine.

Water symbolizes renewal, transformation, and purification in spiritual contexts, reflecting the cyclical nature of life, regeneration, and the passage of time. Many creation myths portray water as the primordial element from which life emerges, emphasizing its vital importance, while its fluidity serves as a metaphor for spiritual growth and resilience.

It is elevating to see how water inspires artistic endeavours across visual arts, literature, poetry, music, and dance. Artists like Claude Monet and Hokusai depict water's beauty and symbolism in paintings and sculptures, exploring its emotional depth.

Water also plays a central role in cultural festivals, honouring water deities and commemorating historical events related to water. In indigenous traditions, bodies of water are considered sacred, embodying spiritual connections to ancestors and nature spirits. Historically, water bodies facilitated trade and cultural exchange, shaping civilizations, and fostering intercultural connections[17].

Cultures with strong water symbolism emphasize conservation and stewardship of natural resources. Water's spiritual significance underscores ethical imperatives to protect and preserve water bodies for future generations, reflecting values of interconnectedness and sustainability. Something that a modern society is invited to remember again and improve our relationship with water.

In summary, water's cultural and spiritual significance is woven into the fabric of human existence, shaping beliefs, practices, and perceptions of the natural world. Its symbolism transcends geographical and historical boundaries, uniting diverse societies through shared reverence and respect for this vital element.

There is yet another topic related to water and societal welfare. Water diplomacy is a fast emerging field that is playing a more and more significant role especially in the time of climate change. It recognizes water as a critical resource or even a security threat that transcends national boundaries, necessitating collaborative efforts to ensure

sustainable and equitable management.

It focuses on conflict prevention and resolution, transboundary water management, and leveraging water issues to foster regional stability. Key aspects include engagement in international water law, multi-stakeholder involvement, and the promotion of cooperative frameworks.

Examples like the Mekong River Commission and the Nile Basin Initiative highlight how water diplomacy enhances water security, fosters peace, and supports sustainable development goals. Furthermore, increasing global conflicts, such as those in Afghanistan and Somalia, which are, among others, consequences of water scarcity, particularly in agricultural regions, leading to severe life-threatening conditions and conflict, are another proof about the importance of water diplomacy.

Overall, water diplomacy is essential for ensuring equitable and sustainable management of shared water resources, contributing to global stability and resilience. As we can see, water plays an essential role in shaping collective identities and narratives. More about these topics is further explored in other chapters of the book.

Unique And Unexplained Properties Of Water

Water exhibits several unique properties that distinguish it from other substances and contribute to its significance in natural processes.

For me, the most fascinating one is the fact that water exists in three distinct physical states under normal conditions: solid (ice), liquid (water), and gas (water vapour). This versatility is rare among substances and is crucial for supporting life on Earth.

It reaches its maximum density at 4°C, causing ice to float and insulate bodies of water during colder temperatures—a critical factor for aquatic ecosystems[10]. Water can absorb and retain heat, moderating Earth's climate and supporting thermoregulation in aquatic environments[11]. Water molecules are strongly attracted to each other, resulting in a high surface tension. This allows small objects to float on the surface and enables certain insects like water striders to walk on water. Its polarity

allows water to move against gravity and to dissolve a wide range of substances, facilitating biological processes such as nutrient transport and waste removal in living organisms[12].

Unlike most substances, water expands when it freezes, preventing bodies of water from freezing solid and allowing life to survive beneath the ice[13].

Water is often called the "universal solvent" because it can dissolve a wide range of substances due to its polar nature. This property is essential for many biological processes.

These unique properties of water play crucial roles in various natural processes and are still not fully understood by science, making water a fascinating subject of study.

Cosmic Water

The study of cosmic water raises intriguing questions about Earth's water sources and the potential for extraterrestrial life.

Molecular clouds in interstellar space contain water vapour and ice, contributing to star formation and planetary systems[18]. Comets, composed of ice and dust, may have delivered water to Earth during the early stages of the solar system's formation, providing insights into Earth's cosmic origin[19]. Moons and planets with subsurface oceans, such as Europa, offer clues about the prevalence of water in the cosmos and the potential for habitable environments beyond Earth[20].

Can you imagine that we might be drinking water from another galaxy? Perhaps the droplets of our water were once oceans on another planet, maybe they served as sustenance for unknown species millions of light-years away. What a fascinating thought!

Can Water Be Our Next Global Medium For Communication?

The idea of using water for planetary communication might be considered in scenarios where liquid water is present on other celestial bodies, such

as icy moons like Europa (moon of Jupiter) or Enceladus (moon of Saturn). Water-filled subsurface oceans could potentially be used as transmission media for signals.

Water's conductivity suggests potential for signal transmission across vast distances in space, sparking discussions about unconventional communication methods[21].

Existing underwater communication systems provide insights into water's properties for signal transmission, offering a blueprint for potential extraterrestrial communication scenarios[22].

While water as a planetary communication system remains speculative and theoretical, it underscores the innovative thinking and exploration of unconventional ideas in the context of space exploration and astrobiology. As our understanding of the universe expands and technology advances, scientists continue to explore novel approaches to communication and exploration beyond Earth's boundaries[23].

Does Water Have A Memory?

The concept of water having memory, proposed by Jacques Benveniste, in the late 1980s, remains controversial within mainstream scientific circles. He proposed that water can retain a "memory" of substances water can retain a "memory" of substances dissolved in it even after those substances are removed[14].

However, this hypothesis has not been scientifically substantiated through rigorous experimentation and is outside the boundaries of mainstream scientific understanding. The scientific community generally regards claims of water memory as lacking credible evidence and failing to adhere to established principles of physics and chemistry.

Yet, there are artists who explore themes related to water, memory, and the environment in their work. These artists may draw inspiration from the symbolism, beauty, and significance of water rather than a literal interpretation of water having memory. They are pushing our realms of understanding beyond the known and attract our imagination to continue

to use our curiosity and research further. Among those artists whose work revolves around water and memory in various ways, I am happy to mention **Laurie Anderson**. She is a multimedia artist known for her innovative work in music, performance art, and installations. In pieces like "Water Writing," Anderson has explored the sensory and emotional aspects of water, evoking themes of memory, fluidity, and reflection. Another artist is **Olafur Eliasson**. He is an artist who often incorporates elements of nature, light, and water into his immersive installations. His large-scale works, such as "The Weather Project" at Tate Modern, London, create captivating environments that encourage contemplation of natural phenomena and human perception.

But more and more inspiring art work is emerging from the grassroots art studios, as well. We have been most inspired during the “Year Of Water” by **Yuko Kudo** and her circle of artists and friends, who are intrigued by climate change and the scarcity of water. They captured different moments in the history of communities and even composed a beautiful song “We are Water", indicating the complete symbiosis between water and human beings. The captivating paintings of water through the storytelling of **Deirdra McMenamin**, an eco artist for wellbeing, are still resonating with us, deeply touching our awareness and understanding of our connectedness with nature, our outside and our inner world.

Last but not least, let me also mention **Maya Lin**. She is an artist and architect known for her minimalist designs that interact with natural landscapes. Her sculptures and installations, such as "What is Missing?" and "Storm King Wavefield," often incorporate water as a central element, emphasising the interconnectedness of ecosystems and the impact of human actions on the environment. These artists and many more approach the theme of water and memory through metaphorical, symbolic, or experiential means. Their works invite viewers to reflect on the profound connections between nature, memory, and human experience.

Conclusion

Water covers the largest proportion of the planet Earth. It is closely related to the development of humanity and overall biodiversity.

It holds deep cultural and spiritual significance across diverse societies, profoundly influencing rituals, traditions, and artistic expressions. Its symbolic role in ceremonies underscores themes of purity, renewal, and connection to the divine, reflecting universal beliefs and values shaped by water's revered status.

The captivating properties, scientific mysteries, and proven facts surrounding water create a compelling field for exploration and discovery. Despite extensive research, many aspects of water remain enigmatic, pointing to vast potential for future scientific inquiries to unveil its cosmic essence.

Cultures that revere water often prioritise conservation and stewardship of natural resources, reflecting ethical imperatives rooted in interconnectedness and sustainability. Water's sacred status in indigenous traditions underscores a deep responsibility to protect and preserve water bodies for future generations. Something we are invited today to follow.

Ongoing scientific research, despite scepticism, delves into water's complex behaviours and potential applications, pushing the boundaries of scientific understanding and uncovering new insights into this fundamental element.

Water diplomacy confronts challenges in managing conflicts arising from water scarcity, yet initiatives show promise in promoting peace and collaboration. Collaborative efforts are crucial to addressing global water challenges and achieving sustainable development goals.

These conclusions illuminate the multifaceted nature of water, encompassing its scientific properties, cultural symbolism and environmental significance. They inspire further exploration and action to safeguard water resources, foster cooperation, and deepen our appreciation of water's profound impact on humanity and the natural world.

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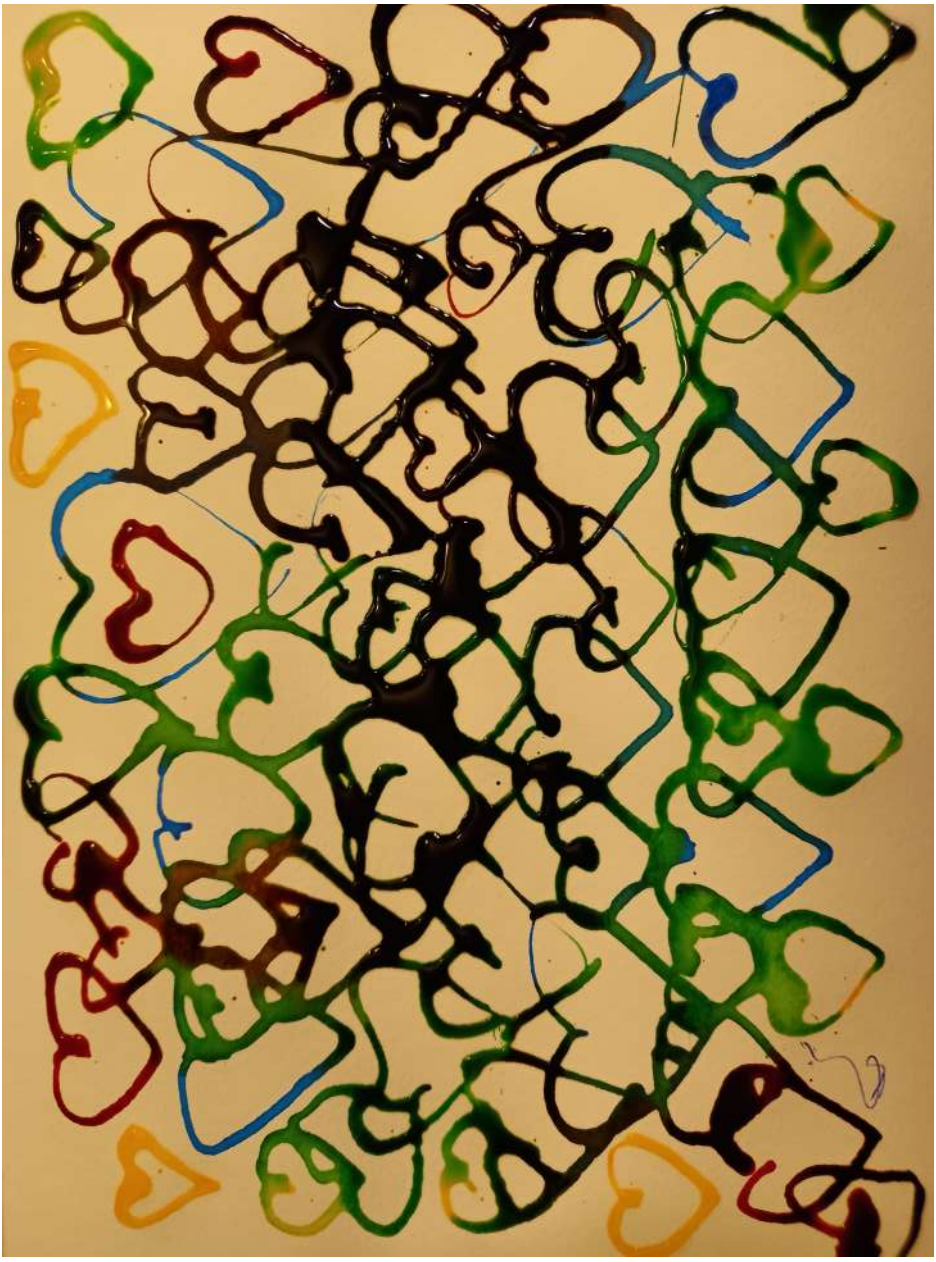
CONCLUSION



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INSTEAD OF CONCLUSION

By Dr. hc. Violeta Bulc

In the years 2022, 2023, and the beginning of 2024, the Ecocivilisation Movement organized a total of fourteen events centred around various aspects of water. The concept of the "Year of Water " emerged as an overarching theme for this series of sessions following the success of the first discussion on Water Diplomacy and Peace, initiated by our Ecocivilisation Wing for Myanmar prof. Dr. Khin NiNi Thien. The enthusiastic response to this discussion highlighted numerous new challenges related to water, prompting us to delve deeper into these topics and beyond.

Ecocivilisation Movement is a mission driven disruptive cluster. It is inspired by outstanding women and men, the exuberant minds from all over the world, who are committed to human well and reinvent the future for humanity with the support of engaging Planet Earth, as well as with the magical strength of **Water**. The movement holds a safe space for those that co-create and deliver the charter of www.ecocivilisation.eu. We are invited to do what it feels right to sustain the planet as an eco-zone of our galaxy with inclusion and diversity at its core – enabling a universal knowledge and wisdom to develop endless ecosystems of collaboration, uplifting economies and societies, based on the Laws of Nature and the frequency of Love.

It is important to acknowledge the dedicated individuals who managed these events as volunteers within our movement: Dr. Rajni Vohra, Yuko Kudo, Prof. Dr. Khin NiNi Thien, and Dr. hc. Violeta Bulc. Their commitment and passion were instrumental in creating a truly memorable and inspiring series of gatherings.

The book you are currently engaging with is a collaborative effort of those that co-created the “Year of Water”. The initiative had a clear goal: to heighten awareness about the vital importance of water, its multifaceted capacities, behaviours, and properties. Our hope is that by deepening our understanding of water, we can collectively shift our relationship with this precious resource from one of exploitation to responsible stewardship.

Throughout these gatherings, a manifesto outlining the relationship between the Ecocivilisation Movement and water took shape, drawing inspiration from a foundational position statement: “**Be the change you want to see, deliver what the world truly needs**”.

This manifesto embodies our commitment to advocating for water's preservation and sustainable management, reflecting our movement's ethos of fostering ecological awareness and responsible environmental practices.

Ecocivilisation And Water Manifesto

Based on rich experience from all over the world we, Ecocivilisation movement, along with our guest experts, proposes to collectively **re-imagine** a vibrant relationship with water and the Planet Earth.

Mission

Ecological Civilisation

Goals

1. clean water for all
2. deliberate
3. inclusive water governance
4. woman empowerment

Pillars Of Engagement

1. socio-technology
2. systems science
3. spiritual transformation

And the journey continues. **www.ecocivilisation.earth**

APPENDIX

Circular Economy Webinars

1. *https://www.youtube.com/watch?v=h5lqPDERj4Y*
2. *https://www.youtube.com/watch?v=mLC9ddVxbvM*
3. *https://www.youtube.com/watch?v=Wv5wDQf_Q4I*
4. *https://www.youtube.com/watch?v=xt7phsTuiR4*
5. *https://www.youtube.com/watch?v=9pkRlFKTKZI*
6. *https://www.youtube.com/watch?v=j5rDtJ3lBDE*
7. *https://www.youtube.com/watch?v=jLaaj98nhPA&t=3s*
8. *https://www.youtube.com/watch?v=jG7DoMRrlVI*
9. *https://www.youtube.com/watch?v=n_ZFjv5dDGU*
10. *https://www.youtube.com/watch?v=_Cycz2FbYuo*

The Year of Water

11. *https://www.youtube.com/watch?v=-rhT5KphBhs*
12. *https://www.youtube.com/watch?v=b0QqRKkHU_M*
13. *https://www.youtube.com/watch?v=S4jOzto_tbI*
14. *https://www.youtube.com/watch?v=tyAFUmgOTi8*
15. *https://www.youtube.com/watch?v=gmMbqXhuFAc*
16. *https://www.youtube.com/watch?v=8869Ga2AxbQ&t=1068s*
17. *https://www.youtube.com/watch?v=Yw-47JuDH7Q*
18. *https://www.youtube.com/watch?v=peL59GPwZnw*
19. *https://www.youtube.com/watch?v=kyH-yP9o-hU&t=2s*
20. *https://www.youtube.com/watch?v=4dWC3wDYB1w*

GLOSSARY

Acid rain: Rainfall contaminated with acidic substances, harmful to the environment.

Adaptive: Able to adjust or change according to different conditions or circumstances, in this case, referring to sports fields that can adapt to climate challenges.

Agreements: Mutual understandings or arrangements, often formal or informal, between parties regarding certain terms or conditions.

Achilles: Referring to Achilles, a character in Greek mythology known for his strength and vulnerability.

Alma Mater: Refers to the school, college, or university from which someone has graduated.

Anthropocentric: Relating to the perspective that human beings are the central or most significant entities in the universe, often associated with human-centered beliefs or actions.

Astounding: Means astonishing or remarkable, emphasizing the significant economic impact of water insecurity and inadequate water management practices.

Ayurveda: An ancient Indian system of medicine that focuses on holistic healing and maintaining balance in the body through diet, herbal treatment, and yogic breathing.

Baseline: A starting point or reference level used for comparison or measurement.
Being of Life: Refers to something that is alive or embodies the essence of life, such as water in this context.

Blur: A state of indistinctness or lack of clarity.

Circular economy: An economic system aimed at minimizing waste and maximizing the use of resources by designing products for reuse, recycling, and regeneration.

Closed-loop systems: Systems where resources are used and reused in a continuous cycle, minimizing waste and environmental impact.

Consistently: Refers to something done regularly or without variation, indicating a persistent focus or approach.

Convergence: The coming together of different elements or ideas.

Digital platform: Refers to an online software or technology that provides services or tools for users, such as managing and organizing sports competitions in this context.

Drift away: To move or stray gradually or unintentionally from a central focus or path, often used metaphorically to describe a shift in attention or direction.

Ecosystems: Communities of living organisms interacting with each other and their environment.

Elemental consciousness: The innate awareness or intelligence associated with natural elements like water, representing an interconnectedness with the environment.

Embodied: To be manifested or represented in physical form, in this context referring to the presence of Earth's consciousness within the fluid body of the hydrosphere.

Energy Medicine: A holistic approach to health and healing that considers the body's energy systems and uses various techniques such as acupuncture, Reiki, and herbal medicine to promote well-being.

Equity: Fairness or impartiality.

Expenditure: Refers to the amount of money spent or allocated for a specific purpose, in this case, the annual expenditure required for SDG 6.

Feature: A characteristic or quality, or in this context, possibly a future outcome or scenario.

Finite: Having limits or bounds, not infinite.

Fluently: Smoothly or easily, without interruption or hesitation, typically referring to the flow or movement of something.

Frequency: In this context, it likely refers to the rate or level of vibration, energy, or consciousness, often associated with spiritual or metaphysical concepts.

Galactic Evolution: Refers to the development or progression of cosmic systems, such as galaxies, in terms of their structure, composition, or processes over time.

Global GDP: Stands for Gross Domestic Product, which measures the total monetary value of all goods and services produced within a country or globally.

Glow: A soft, warm light or radiance, often used metaphorically to describe a sense of inner joy, peace, or positivity.

Holistic: Considering the whole system or individual in its entirety, emphasizing the interconnectedness of various aspects for optimal health and well-being.

Hydrosphere: The combined mass of water on or surrounding the Earth, including oceans, seas, lakes, rivers, and water vapor in the atmosphere.

Illusions: Misleading perceptions or beliefs.

Inequity: Lack of fairness or justice, unfairness.

Insecurity: In this context, "water insecurity" refers to the lack of reliable access to clean water and sanitation services, leading to various economic losses and damages.

In tune: Harmonious or aligned with something.

Irrigators: Refers to individuals or entities involved in irrigation, which is

Jungian: Relating to or characteristic of Carl Jung, a Swiss psychiatrist and psychoanalyst known for his theories on the collective unconscious and archetypes.

Karst: A type of landscape characterized by soluble rocks such as limestone, dolomite, and gypsum, creating features like caves, sinkholes, and underground drainage systems.

Legislation: Laws or regulations created by a governing body.

Linear system: A system that follows a straight or predictable path, often referring to processes that use resources in a linear, one-way flow.

Mythological creature: A legendary or fictional being, often with magical or symbolic significance, such as Šembilja mentioned in the local legend.

Necessitates: Means requires or makes necessary, indicating the essential nature of achieving Sustainable Development Goal 6 (SDG 6) on water and sanitation.

Non-revenue water: Water that is lost in the distribution system before reaching the customer, typically due to leaks, theft, or inaccurate metering.

Omnipresence: The quality of being present everywhere at the same time, suggesting a pervasive or universal presence.

Perception: The way in which something is understood, interpreted, or perceived, often influenced by personal experiences, beliefs, or perspectives.

Permeable: Allowing liquids or gases to pass through, often used to describe soils or materials that allow water to infiltrate.

Permeated: To spread throughout or penetrate, suggesting the deep integration of water within the Earth's structure.

Precipice: The edge of a dangerous situation or significant change.

Prolonged droughts: Extended periods of time with significantly below-average rainfall, leading to dry conditions and water scarcity.

Property flood damages: Describes the financial losses incurred due to flooding that Regenerative: Capable of renewal or restoration, promoting growth or recovery.

Quest: Refers to a search or pursuit, often used to describe a journey or effort to achieve something.

Rebalancing: The act of restoring or readjusting to achieve equilibrium or harmony, especially in the context of addressing imbalances within systems or civilizations.

Regenerative: Capable of renewal or restoration, promoting growth or recovery.

Resource efficiency: Using resources in a way that minimizes waste and maximizes output or benefits.

Šembilja: A mythical creature mentioned in local legends, possibly symbolizing cultural or spiritual significance.

Sentient: Having the capacity to perceive or experience sensations, feelings, or consciousness, indicating awareness or responsiveness.

Stark: Indicates something that is harsh, severe, or strikingly clear, often used to describe a situation without embellishment or softening.

Start-up company: A newly established business venture, typically with innovative ideas or products, often in the early stages of development and growth.

Steady-state economy: An economic model focused on maintaining stability and equilibrium, often emphasizing sustainable resource use and environmental conservation.

Sustainable values: Principles and practices that prioritize environmental

conservation, social responsibility, and economic viability for long-term well-being.

Superpower: An exceptional power or ability.

Synchronicity: The simultaneous occurrence of events that seem meaningful or related.

Teleology: The philosophical study of purpose or goal-directedness in nature.

UNESCO World Heritage List: A list maintained by the United NationsEducational, Scientific and Cultural Organization (UNESCO) that recognizes sites of cultural, historical, or natural significance and promotes their preservation.

Undulating: Moving in a smooth, wave-like motion.

Uplift: To raise or elevate, often used metaphorically to describe a positive impact,
inspiration, or improvement.

Urbanization: The process of increasing the population and infrastructure development in urban areas.

Watershed: A critical point or turning point in a process or situation.

Water management: The process of planning, controlling, and optimizing the use and distribution of water resources.

Water scarcity: Refers to the shortage or insufficient supply of water resources compared to demand, leading to challenges in meeting basic needs and sustaining ecosystems.

Water security: Ensuring reliable access to clean water for various purposes, including drinking, sanitation, agriculture, and industry, to support human well-being and ecosystem health.

Water stress: A condition where water resources are under pressure due to high demand, pollution, climate change, or other factors, leading to challenges in meeting water needs.

Wavelength: In this context, it likely refers to the distance between successive crests of a wave, often used in discussions about energy, frequencies, or vibrations.

World Water Day: A global observance day held annually on March 22nd to raise awareness about water-related issues and promote sustainable water management practices.

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