

MEA water: Research and trial results

Introduction

The purpose of this paper is to describe the research and MEA water trial results produced by Resonate Research Pty Ltd (research company with the Gourlay Group of companies) in the development of devices to re-structure water. Structured or energised water occurs in nature in the form of glacial water, pristine water in rivers and deep springs, and in rainfall through unpolluted air. Orbtek uses the term ***Magnetised, Energised and Activated (MEA)*** water to describe the **structured water** that is produced by these devices.

The background and scientific description of structured water is contained in a separate document produced by Orbtek Pty Ltd and is titled ***Structured Water: The basis of vital life***. Structured or energised water is also known as Exclusion Zone (EZ) water, Fourth Phase water (H₃O₂), magnetised water, living water, living energy, and activated water, and these terms are used inter-changeably in this paper.

Orbtek Pty Ltd along with Resonate Research Pty Ltd have developed devices to condition water into a cohesive, living water structure that has life-affirming effects on soil, biology, plants, animals, and humans. The devices use magnetism to energise and activate the water into a natural structure that is aligned to the health of living cells (coherence).

Water and biological coherence are fundamental to our energy systems and to optimise health, vitality, and longevity. The science of water structure provides insight to the liquid crystalline molecular fabric that interconnects all parts and processes within living things. This living matrix gives a substantial basis for the term *holistic* and a scientific basis for alternative therapies for humans and animals (including homeopathy where the energised water is used as a base or carrier for other compounds or elements).

Water structure and energy (including cell polarity) are more critical to life function than the natural chemical constituents of water. The living world is in an equal partnership between biology and the concentration of negative hydrogen ions (H⁻) in water. Life function also includes radiant energy (sunlight as electromagnetic energy) that produces or drives work (molecular order and charge separation) in water.

Structured/ Energised Water: Testing results

Initial tests on the effectiveness of the **Orbtek** and **Resonate Research** water conditioners produced the following results:

- The water tastes soft and balanced
- The water has a lower viscosity (less friction or resistance on a surface) and is therefore better as a wetting agent
- The water enhances the life-force energy (biofield) of all natural materials that it embodies
- The water replaces toxins in cells

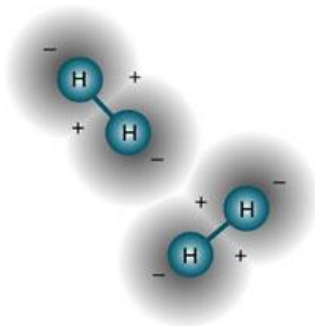
- The water changes the state of other water that it is in contact with (through **entrainment**) to a structured form (a field-force or biofield effect process)
- Plants increase photosynthesis and uptake of nutrients (often between 2-4 fold's increase)
- Plant life energy is extended (ie. nutrient density/value and longer storage capacity)
- Increased resilience of vegetables and fruit to pest attack (possibly through the increased uptake of silicon as silicic acid: the bioactive form of silicon)
- Shortening the growing period to maturity for vegetables and fruit
- People who drink structured and energised water feel more energised and creative. This water will *lift the fog* on thinking.

After a few years of redesigning and testing, the results indicated a strong epigenetic (environmental) influence of the negatively charged water on soil microbes (biology) and plants, especially important for microbial activity becoming multi-generational (diversity). That is, there was a significant effect of the presence of the MEA negatively charged water (ie. like thunderstorm water) on plant growth, eg. uptake of soil nutrients to the plant. Consequently, the microbes and negatively charged water are the life forces within the soil, breaking down the nutrition in the soil into forms digestible by the plants. If microbes aren't flourishing in the soil, plants will not properly grow, and will become disease-prone and susceptible to viruses, fungus, and insect invasion. There is clear evidence from tests by **Resonate Research** that soil health is significantly improved when negatively charged water is added to microbial formulations.

Negative hydrogen ions in MEA water

The results obtained from the application of MEA water to plants can in part be explained by the capture and concentration of negatively charged (-) hydrogen (H) ions in the water through the interface of magnetic energy pulses and the flowing (vortex) water. MEA water research has also determined that the H- ions are potentially enhanced or concentrated in the water vortices and in the presence of biologically active water (ie. water with a high diversity and abundance of beneficial microbes). This gives rise in natural systems to the concentration of H- in flowing water, biologically active ponds/ lakes, and soils.

The degradation of H- ions in nature is a direct consequence of man's intervention with natural systems that has reduced the availability of H- to biological systems. These interventions include agriculture, water processing or treatment (eg. septic systems with trenches), engineering facilities that change water flow patterns, air pollution, chemical use in the environment, any action that changes the natural light energy input and biological/microbial balance in natural systems, etc. There can be no healthy natural systems without a concentration of H- ions. For example, nature re-conditions water in chains of ponds (biologically active with sunlight energy), flowing rivers with bends and rapids/waterfalls, etc.

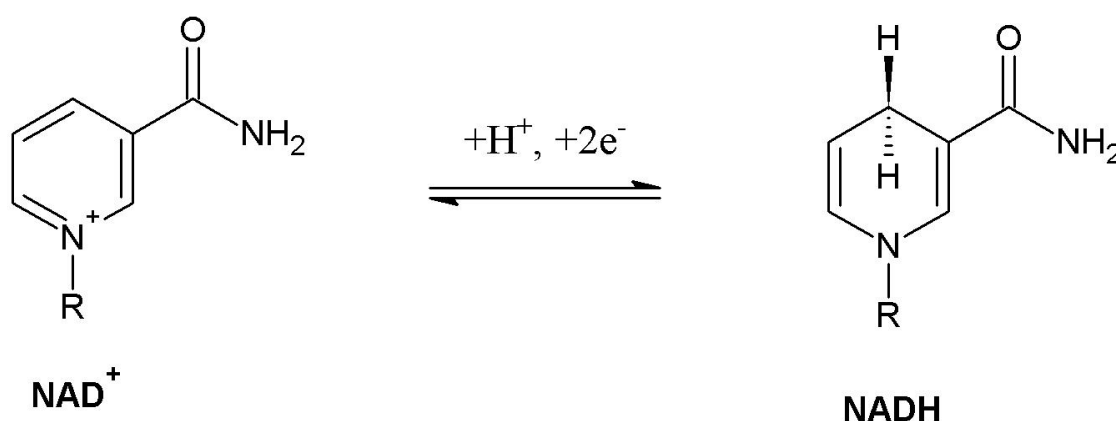


This little-known nutrient (H-) is, in fact, the smallest element known to exist, and existed before any life on Earth. Regardless of its size, it is indispensable in virtually every chemical reaction in water, soil, plants, animals, and humans. Nowhere is this more important than inside the cells where tiny organisms, called mitochondria, translate the free electron negative charge associated with the H- molecule into the ATP which provides the energy necessary to produce growth, repair, and regeneration.

It became generally recognized by the late 1990s that the likely mechanism by which certain key energy-transport molecules in living systems were formed and subsequently regenerated after *being burned* (eg. NAD conversion to NADH), was via donation of H^- to the molecule by a donor molecule, the origins of which ultimately traced back to the **energy liberated from sunlight during photosynthesis**.

In other words, hydrogen, and the H- ion have emerged as the primary energy currency in living systems. An excellent and simple example is the binary pair NAD and NADH. **Nicotinamide adenine dinucleotide**, abbreviated NAD^+ , is a coenzyme found in all living cells. The compound is a dinucleotide, since it consists of two nucleotides joined through their phosphate groups. One nucleotide contains an adenine base and the other nicotinamide.

In metabolism, NAD^+ is involved in redox reactions, carrying electrons from one reaction to another. The coenzyme is, therefore, found in two forms in cells: NAD^+ is an oxidizing agent – it accepts electrons from other molecules and becomes reduced. This reaction forms **NADH**, which can then be used as a reducing agent to donate electrons. These electron transfer reactions are the main function of NAD^+ . However, it is also used in other cellular processes, the most notable one being a substrate of enzymes that add or remove chemical groups from proteins



NADH is well known as a powerful energy carrier in living systems and play a key part in the energy currency of most cells of many life forms, including those of humans, while NAD is its low-energy combustion product. There are pathways in many organisms, including humans, which can, to a limited extent, recharge the NAD with an H- ion to convert it back to the high-energy form of NADH. Thus, the NAD, as the low-energy state, serves as both a precursor to NADH and a combustion product of NADH. As such, NAD can be visualized as the *ground state*, and NADH as the *high-energy state*.

Hydrogen and its H- ion as energy currency in life forms

The preceding discussion is of great interest because it is suggesting that hydrogen, at least the H- ion, might be the primary energy currency of life. Indeed, closer, and deeper examination of the literature shows that this idea is hardly new. As early as the 1950's, Nobel Prize-winning biochemist Albert Szent-Gyorgyi proposed in articles and books that **hydrogen is the true energy currency of life** and is the *true currency or carrier of energy* in photosynthesis. He stressed that this energy currency may be traced directly back to the sun, or more literally, to the energy contained in sunlight. This is especially fascinating, given the discovery of latter 20th century astronomy that much of the sun's atmosphere is composed of the H- ion. In this respect, one can see that hydrogen and its H- ion, located in the sun millions of miles away, donate energy in forms which allow photosynthetic organisms on earth to also liberate the H- ion from compounds which were initially at a lower energy state, and then bind and transport that H- ion as energy currency to support a wide range of life on earth.

The negative hydrogen ion (H- ion) has been observed to occur naturally in our universe in water and water vapour subjected to ionizing radiation. The H-minus ion may be found in rather copious quantities on our planet's surface in the biosphere, at *normal or* standard temperatures and pressures (STP) in:

- high-altitude mountain wells and springs
- high-altitude glacial runoff streams
- some deep wells in relatively stable geological formations
- pristine sources of moving water in open air (rivers and creeks, etc.)
- living life forms such as plants, animals, and humans.

It is interesting to note that these water sources have high concentrations of mineral ions (eg. silica)

Negatively charged hydrogen ions in plant, animal, and human health

The one ingredient that our bodies require to accomplish all tasks is H- (negatively charged hydrogen). H- is formed in natural flowing waters (including groundwater/springs) and water vapour through ionising radiation and through the application of a magnetic or electrical pulse to the flowing water. Also, anyone consuming a significant quantity of nutrient dense raw food will ingest a high number of H- ions. The H- ion will travel almost anywhere in all biological systems due to its tiny mass and size.

It is very likely that H- ions are the life force energy that enables all biological systems (microbes, water, soil, air, plants, animals, and humans) to function to full capacity and integrity. However, most people only have access to water (and food) that has been manipulated and contaminated by human intervention. This includes the addition of Chlorine and Fluoride to water, along with piping water over long distances. Also, the cooking, heating, milling, chemical contamination, or prolonged storage of raw (natural) food will remove H- ions. There would be no H- ions in processed foods or treated (including filtered) water.

In the latter half of the 20th century, it became apparent that the negative hydrogen ion was not as rare and short-lived in nature on our planet's surface as once thought. Indeed, by the 1990s it became apparent the H minus (-) ion is ubiquitous in the biochemistry of life forms on earth, and

essential to certain key biochemical reactions related to the citric acid cycle (Krebs cycle) in living organisms.

By the late 1990's, it became obvious that several common antioxidants found in plants and animals, (Vitamin E among them) function as an antioxidant by acting as a transport vessel for the H⁻ ion, donating it at the right time within living systems to neutralize any of several species of oxygen free radicals (oxidizing radicals), also known as reactive oxygen species (ROS) occurring in tissues or fluids in or around the cells.

Also, every cell in the human body contains a scavenging enzyme called superoxide dismutase (SOD) that neutralises emerging super radicals. The MEA device has been measured to eliminate E. coli from water (see results at page 7) and this may be explained as the creation of alternative oxygen species (eg. in the O₂⁻ form) in structured water (ie. a by-product of EZ dynamics) that effectively eliminates pathogenic microbes. The human body uses hydrogen peroxide (H₂O₂) in the same manner.

The H-minus ion (or H⁻ ion) also plays a critical role in all known life forms on earth. It acts both as an energy carrier (providing **energy currency**) and as an **antioxidant in numerous biological systems**. In its antioxidant role, this ion functions as a powerful primal, primitive, primeval, primordial, and primary antioxidant found in all raw, unprocessed foods (plant and animal) and in many **wild, unprocessed, untreated water sources in the biosphere** (the area around the surface of the planet where life exists.)

It appears that this tiny and lightweight ion was the original antioxidant for all life forms on earth and is likely the single most optimal antioxidant for life forms even today. However, this ion is rather fragile in our biosphere, and it is easily driven off or destroyed by processing food and water. It appears that our ancestors likely ingested a significant amount of this ion in their daily food and water intake, while we modern (*civilised*) folk often receive very little in our diets.

It is commonly known that the health of a plant depends on hydration. Peter C. Agre, an American medical doctor, professor, and molecular biologist won the 2003 Nobel Prize in Chemistry for his discovery of aquaporins, the water-channel proteins that move water molecules through cell membranes. Plant cellular aquaporins are micro channels that transport water and nutrients through cell walls, letting (H⁻) good water in and keeping (H⁺) bad water out.

When the molecule is positive-charged, and clumped, the aquaporin rejects it, and stops it from passing through the cellular membrane. This results in water molecules competing for remaining electrons and clumping together. Hydration at cellular levels can only receive one water molecule at a time through the aquaporin channel. That one molecule of water cannot carry with it anything physical or electrical. All it carries is the energy or vibration and the elements that are beneficial for life.

Regular tap water is in clusters of water molecules, while structured or energised water is in one molecule, allowing for super hydration of plants, animals, and humans. Restructuring water at a molecular level revitalises water by **restoring the beneficial NEGATIVE hydrogen ions (H⁻)**, making the water readily acceptable for maximum absorption by plants and animals.

The use by humans of energised water saturated with negatively charged hydrogen ions may experience more energy, less fatigue, or improved mental clarity. This simple hydrogen atom can improve your performance while:

- fighting free radical damage throughout the body
- balancing the body's chemistry through the biological terrain
- helping to resist sickness
- reversing the disease process and slowing down aging.

Summary of Research Outcomes

Below are a series of photographs that illustrate the outcomes of using the water re-structuring devices to grow plants. This section also summaries general observations from the research and where the research is headed in the next few years.

The most significant finding from the testing of these MEA devices on soils and plants is that the negatively charged water from these devices potentate any living system (eg. soil and plants). For example, the activity and function of soil biology is significantly increased, and soil water storage capacity improves. In the case of plants, the following has been observed and measured:

- Seed germination is increased to nearly 100%
- Shorter growing period to maturity
- Nutrient uptake is increased from 2-4 folds (particularly if the application includes biological applications)
- Significantly decreased insect attack
- Significantly decreased plant diseases, including fungal attacks
- Fruit flavour is significantly increased
- Vegetable and fruit size can at least double without loss of flavour
- Vegetable and fruit storage time is increased.

Below are photographs of vegetables grown with structured water and biological applications.



The beetroot on page 6 (left) weighed over 1.3 kg and was juicy, nutrient dense and flavoursome. The cabbages on the right had no cabbage moth attack, while untreated cabbages were attacked by insects.

Tests on drinking and wastewater

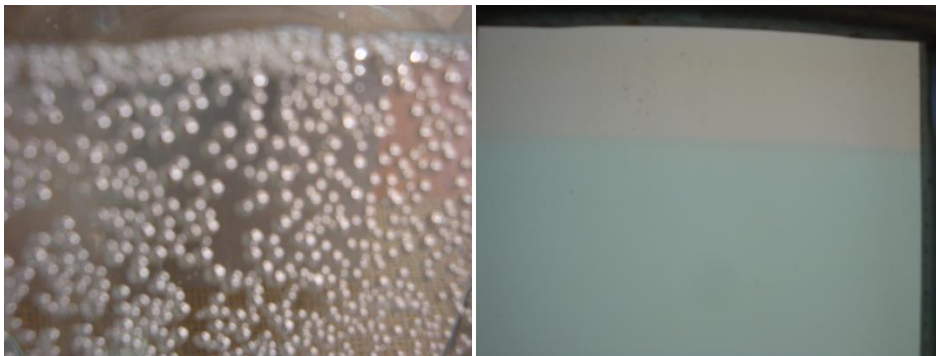
Laboratory tests have been conducted to test for the reduction in E. coli (pathogenic microbe) in various waters. These tests were undertaken independently in government accredited and approved laboratories.

The results include:

1. Comparison of water drawn from a creek and passed through a 1 and ¼" device and the water drawn from the kitchen tap after passing through the device. The E. coli count at the creek was **250** faecal coliforms (cfu/100 ml) and was reduced to **2** at the kitchen tap outlet. This test was undertaken by laboratories at Southern Cross University (14 Nov 2013)
2. Comparison of wastewater from a piggery and water after it had passed through a 2" device. The wastewater had **2,178** faecal coliforms (cfu/100 ml) and only **1** in the water once it had passed through the device. This water was tested by the Tweed Laboratory Centre of the Tweed Shire Council (12 Mar 2014)

Clearly, these results are significant, and while preliminary until further tests confirm this result with other smaller devices, these results indicate the capacity of the devices to restructure water into a coherent, life affirming and natural structure form.

State of Structured (Coherent) water



The structured water has two distinct properties that are illustrated in the images above. The water is generally high in gas bubbles (possibly oxygen and hydrogen) as can be seen in the image on the left. Also, the water has a blue/green tinge or aura (image on the right), and this is typical of all highly-structured waters (eg. glacial melt waters).

It was also found that the structured water would increase under several conditions:

- when bore water, and pristine river and spring water with high ion content (mineralised and oxygenated) was used through a device
- when the water was rotated through a device for about 20 minutes and longer depending on volume to be rotated
- when the water was pre-treated with a venturi just prior to the device

- when the water from the device was spun in an anti-clockwise vortex before storage in a vessel. An example of this action is illustrated in the images below
- when the structured water is co-joined with diverse and abundant, beneficial microbes; along with high ion water (mineralised and oxygenated water) especially in a pond or dam where the water voltage quickly moved to a negative voltage
- when the water is exposed to sunlight energy before and after the device (see images below)



The above image shows the conditioning of bore water through a prototype ¾" magnetic device and spinning of the water in an anti-clockwise vortex, along with exposure to sunlight energy before storage in a 1,000-litre container (IBC) This water has retained a blue tinge/aura and negative voltage of -450 mV for over 10 months in a stable form.

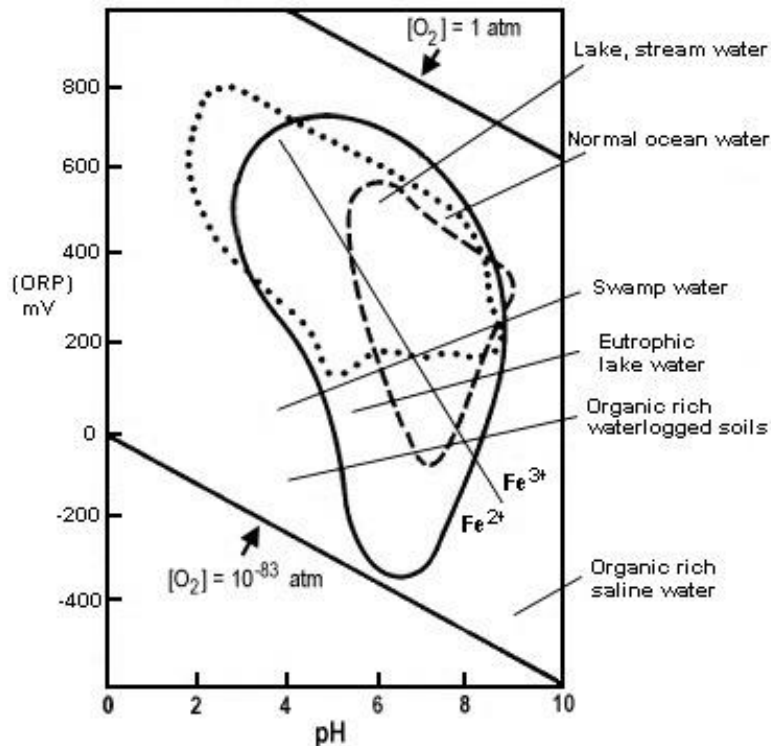
It is clear from this research that water and biological coherence are fundamental to our energy systems and to optimise health, vitality, and longevity. The science of water structure provides insight to the liquid crystalline molecular fabric that interconnects all parts and processes within living things. This living matrix gives a substantial basis for the term *holistic* and a scientific basis for alternative therapies for humans and animals.

Water structure and energy (including cell polarity) are more critical to life function than the natural chemical constituents of water. The living world is an equal partnership between the biological molecules and water molecules.

Research has also concluded that water pH, ORP and EC are not particularly relevant to the creation or presence of structured water. The critical factor is only the extent of the negative voltage of the water. Albeit, that most treated waters will lose some negative charge towards positive over time, the negative voltage will stabilise within days and remain stable indefinitely with negative charge.

In the diagram on page 9 shows that pristine waters in rivers and creeks have slightly acidic pH and an ORP value that is positive, and often well above 200 mV. It is concluded that the consumption of alkaline water (as promoted in many commercial water treatment technologies) has no relevance in terms of cellular health (all water consumed will be highly acidic once it reaches the stomach). In fact, alkaline (high pH above 7.5pH) water is deprived of oxygen and these waters are not life-

affirming. However, pristine water that is well mineralised (particularly alkaline minerals) and oxygenated (high positive ORP) will produce the best structured water results.



In the case of wastewater, the in-line devices will separate out the wastes (eg. organic matter and any other materials that are foreign to natural water). These separated materials will form at the bottom of the water and remain separated. Trials with a 2" device have demonstrated that odour from septic water can be eliminated within 2-3 hours of cycling through the device, and the water separated from the organic wastes. This process is improved with the addition of beneficial, anaerobic biology at a rate of 1:50 water. There is clear evidence that biology and negative voltage water are synergistic in collapsing the humic molecules around the metal ions in the water after the magnetic field has been applied to the ions.

Also, where the device is fitted to a house water supply, the materials that coat the inside of the pipe (eg. calcium, chlorine, fluoride, organic materials, and acids) will be completely dissolved or dislodged within about 2-3 weeks of installation. That's why magnets are often clamped onto the pipe that feeds water to boilers. It causes the colloidal minerals to stay in suspension rather than plating out on the walls of the pipes. Trials have shown that urban (chemically treated) water quality improves significantly after 2-3 weeks of treatment with a magnetic device. Also, this structured water is the most suitable water for bathing and showering, as your skin absorbs water and the colloidal minerals in the water.

Water conditioners: a pathway to health

The water conditioners developed and produced by **Resonate Research Pty Ltd** are based on the fundamental premise that soils, biology, plants, animals, and humans need a regular supply of

negatively charged, structured water to achieve optimal health. The manner that water is charged to sustain this effect is the basis of the technology design, for a range of devices.

The **MEA** water conditioner device is a *once only* purchase. There are no moving parts or filters for maintenance. The device will hold its energy for an indefinite period when used in the manner prescribed for application.

MEA provides the following devices:

- A small mobile device to affix to a bottle (eg. wine bottle) for treating 1L volumes
- A device to affix to a garden hose
- A range of devices to affix to pipes. These devices will have ½", ¾", 1 ¼", 2" and 4" openings or end fittings.



These devices (like the one above) are currently in an early commercial phase with application in a wide range of uses, including treatment of urban water on houses in towns and cities, fruit irrigation systems, compost treatment, wastewater treatment, animal housing water systems and vegetable production systems. Also, a bottle top device is available for in-house use for water, juices, milk, etc.

Bottle top device

Below is an image of the water restructuring device for a screw bottle top (used with 2 bottles as shown below). Also, below (right) is an image of a device that can be fitted to a shower or under the sink. This device can also be fitted to a garden sprinkler. These devices are fitted (encased) with neodymium magnets and designed using sacred geometry principles.



The bottle top device is most suitable for internal use for restructuring drinking water (particularly urban or chemically treated water), wine, juices, milk, and other liquids that are predominately water. This device can be expected to remove the smell and taste of chlorine from urban water after it is stored for a short time to release gasses.

For example, trials with wine have produced significant results that include:

- Greater balance in wine structure
- Increased sense of flavours and aroma is intensified
- Considerably less tannin taste and sharpness (acidity) taste
- Potentially enhances the beneficial aspects of polyphenols

This device will potentially improve the quality of water in all liquids and potentate the uptake of nutrients and minerals in liquids.

Future Research Directions

Orbtek and Resonate Research are further researching and developing the technology in the following directions, and confirmation that restructured or cell water will:

1. Significantly increase the uptake of nutrients that are vital to health for plants, animals, and humans
2. Exclude toxins (or molecularly change toxins) from water and the uptake of these toxins into cells. This would include the exclusion of toxic elements and chemicals such as arsenic, iron, fluoride, chlorine (water chlorination), glyphosate (from *Roundup Ready* herbicide) and a wide range of synthetic medications that potentially block metabolic pathways for nutrients to cells
3. Enable cells to increase and sustain negative voltage, when ingested by animals and humans and applied to soil and plants
4. Increase the life-affirming activity of microbes in soil, on plants (less disease) and in the gut of insects, animals, and humans
5. Provide a base for homeopathic preparations (in lieu of alcohol)
6. Embody a range (up to 108) of natural occurring (healing) vibrational frequencies (eg. 528 and 444 Hz) into the negatively charged MEA water. That is, the frequencies will be held permanently in the device and in the water passing through the device. This is enabled by the unique magnetic induction capacity of the device.
7. Convert seawater into fresh water (ie. potable drinking water).

This research will continue to develop the effects of magnetism on the creation and coherence of structured water, and specifically on the geometric relationship between magnetism and water structure. Also, the research will further develop the techniques for measurement of structured water potential or capacity using a range of technologies including milli-voltage measurement devices, Photospectrometry (a method of using light emission or absorption to determine the composition of substances. It generally involves the use of light emitters and receptors coupled with signal analysers).

Overall, this research and trialling activity aims to demonstrate the use of structured water to increase the life-force energy of living cells, measured by a sustained, high negative voltage and improvement in health and wellbeing.

A primary focus of this research is to awaken interest and improve understanding about the importance of water and food integrity in human health. It is this focus that is required to reduce sickness and poverty. The current reliance of societies on synthetic medications, chemicals and genetically modified organisms (GMO) in food production will not only increase malnutrition, disease and poverty, but destroy the very foundations of life (ie. water and food quality)

Conclusion

The poor quality and limited supply of water is one of the biggest challenges for all nations with presently two-fifths of the world's population unable to find an adequate supply of fresh water for essential usage. Environmental chemical exposures number in the tens of thousands among industrialized populations. Water, air, food, and now the bodies of animals and humans are saturated with **xenobiotic chemicals** (compounds foreign to our biochemistry) most of which did not even exist on the planet before the industrial revolution of the late 19th century.

Since about the 1960's research has been carried out on the positive effects that energised (structured) water has on the capacity to support life to its fullest potential. This process involves subjecting water to natural water rhythms and specific vortex flow. The four critical aspects that determine water quality are:

- chemical and mineral constituents (including oxygen levels and presence of negatively charged Hydrogen ions: H⁻)
- organic and biological aspects (including contamination by toxins or pathogenic microbes or water that is out of balance between beneficial and pathogenic microbes)
- energetic, vibrational (frequency) or structured naturally
- charge potential (ie. measured as negative millivolts) and capacity to hold that negative charge indefinitely.

Water could be considered to have an inbuilt intelligence that strives to achieve balance and natural rhythm. When water is subjected to the natural energies of the Earth and flow in natural vortices (patterns of flow) water will revert to its natural quality that is **life affirming**.

Extensive research by **Resonate Research Pty Ltd** has resulted in a device that enables rapid conditioning or treatment of water, and without filters that converts wastewater into a usable form. That is the quality of the water output from the device can be determined by the quality of the input water. For example:

- high quality spring water can be raised to a much higher energetic level (ie. negative millivolts charge, concentration of negatively charged Hydrogen ions and coherent structure) than its previous state, especially if this water is exposed to sunlight energy and placed into a vortex immediately after treatment by the magnetic device
- contaminated or wastewater that is unusable for life (biologically unbalanced and containing toxic chemicals) can be converted to a higher energetic level than its previous state, and to a point where it can be used almost immediately for life supporting purposes

(eg. soil, plants, animals, etc.). That is, if the **energised** water is also supplied with a diversity and abundance of beneficial microbes.

The key changes in the water treated with the magnetic device are:

- The water absorbs photons of light and concentrates negatively charged Hydrogen ions (H^-). The MEA water is unique in that it holds these light photons and negative (-) hydrogen and gives the water an antioxidant capacity
- The water changes to a coherent/ natural structure (ie. of the hydrogen bonding angle and molecular arrangement)
- There are, most likely, beneficial changes (transmutations or transformations) in the ionic properties of ionic minerals and trace minerals dissolved in the water. These changes can be more dynamic in mineral dense water from a spring, pristine river source (flowing water) and deep groundwater bores
- The water has a high negative charge that is life affirming for all biological systems
- The MEA water takes on a light blue imprint (aura) that does not diminish over time. Blue is the colour of the Earth (from space). Also, the oxygen molecule is almost the same wavelength (vibrational frequency) as the colour blue. In the context of colour philosophy and colour healing, blue is considered a colour of calmness, harmony and happiness. Psychologically, the blue vibration raises consciousness to the realm of spirit, and hence its value in spiritual healing and meditation.